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PC

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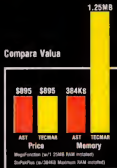
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COVER STORY

The Business of Words

John Dickinson/When you purchase a word processor for yourself or a slew of them for your company, you are buying one of the most confusing and feature-rich classes of software on the market. In this special issue, *PC Magazine* cuts through the confusion and takes an unprecedented approach (see What's Inside on facing page) by reviewing **57 word processors in three categories: corporate, professional, and personal.** 92

Corporate Word Processors

Where words mean business, word processors have to be simple, flexible, and powerful. In the high-volume, corporate environment, choosing the right word processor can dramatically increase any **company's productivity.** ... 100

Professional Word Processors

Writers of all sorts, editors, lawyers, and other wordsmiths prefer speed, responsiveness, and extra features to the more sedate performance of **corporate models.** 134

**Personal Word Processors**

Busy executives and home users have more in common with each other than with professionals and corporate users. They require less raw word processing power than others. Their motto: "Hold the extras; just give it to me straight and fast." 180

Notes from the Underground WordStar

Mel Murch and Ward Starr/Extremists among the legions of *WordStar* cultists vigorously defend their favorite and reveal how to pry power tricks from this venerable program that has remained **secrets for far too long.** 257

ALL THE WORD MAGAZINE LISTENERS' CHOICES

Rank	Product Name	Price	Features
1	Microsoft Word 6.0	\$149.95	Full-featured, easy to use, excellent support
2	Lotus SmartSuite	\$199.95	Integrated office suite with word processing, spreadsheets, and databases
3	WordPerfect 6.0	\$149.95	Powerful word processing with excellent formatting options
4	WordStar 6.0	\$149.95	Advanced word processing with extensive customization options
5	Word 5.0	\$129.95	Stable and reliable word processing software
6	WordPerfect 5.1	\$129.95	Classic word processing software with a long track record
7	Word 4.0	\$119.95	Simple and straightforward word processing
8	WordPerfect 5.0	\$119.95	Feature-rich word processing at a lower price point
9	Word 3.1	\$99.95	Basic word processing for everyday use
10	WordPerfect 4.1	\$99.95	Compact and efficient word processing software

The chart starting on page 94 offers a quick guide to each word processor's important features. More-detailed feature information is printed next to each product's review in a *PC Magazine* Labs Expanded Fact File. There are over 300 possible feature codes, so we've provided definitions for them on a special foldout (page 95) that can be accessed from every review. Be sure to keep this definition page handy to use with *PC Magazine's* upcoming, in-depth report on special-purpose word processors.

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Cover Photograph: Gregory
Cannon



WHAT'S INSIDE



Special projects editor John Dickinson took a new approach to reviewing word processors for this special issue of *PC Magazine*. According to Dickinson, the PC word processing market is actually made up of several distinctly different markets, each defined by the people

who use the products and the type of work they do. As a result, companies that publish word processors try to link procedures and features to users in that specific market. Most address their products to segments of the market rather than to the market as a whole. Reviews that don't take the differences between market segments into account can be misleading because they often rate a particular feature as a liability when it is actually an asset to the very users for whom the product is designed.

Dickinson and associate editor Barbara Krasnoff (pictured together above) worked with the PC Magazine Labs technicians to divide word processors into end-user categories. Seven word processing categories (three reviewed in this issue) and 76 products made for a veritable software jungle, so PC Labs checked to make sure each manufacturer agreed with the product category we assigned. The Labs also discovered that all heartily supported using categories for word processing reviews.

Dickinson and Krasnoff also asked each manufacturer to confirm its product's test results. The companies checked, or even reran, the PC Labs business scenario script and verified answers to over 400 items on the word processing questionnaire. To make sure that printing results were consistent, PC Labs asked Epson America Inc. to supply a complement of brand-new FX-85 printers for the reviewers to use. From the beginning of Dickinson's explanation of testing procedures on page 93 to the last word processor review, you can be sure of getting well-organized, thoroughly researched, and utterly reliable information.

Along with a new approach to looking at word processing, this issue introduces a clean, new design, as created by design director Peter Blank and his art department. It starts with a more striking cover (including a snappy new *PC Magazine* logo) and continues inside with new organizational themes and page designs.

The new design is easier to read because sections are more clearly defined. For example, while the new Viewpoints and Productivity sections contain familiar material, they are now easier to locate. Even the Table of Contents has a fresh new look (notice where *What's Inside* is now located?).

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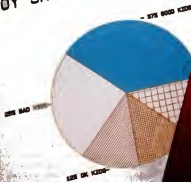
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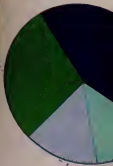
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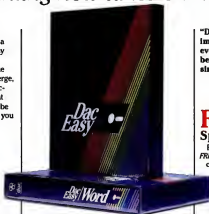
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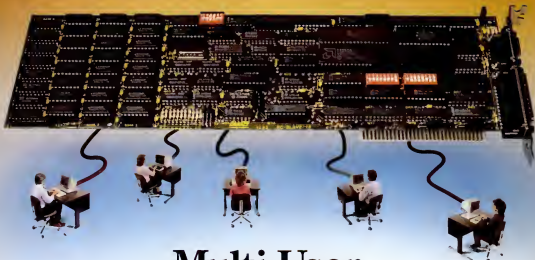
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Turbo cannot compile programs using standard Pascal features that Borland inaccurately sloughed off (e.g., `goto`, `page`, `function` name passing). That's probably led to wordy equivalents in your programs at penalty of expanded size and run time. Surely, "there is a Pascal standard" [Borland] is definitely not standard Pascal. (Conies, Dr. Dobbs' Journal, 7/85)

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Pascal, as defined is austere as an Alp, but Pro Pascal has sturdy outcroppings to hang onto: dynamic strings, random file record access, long integers, single and

BRIEF

Is Anything But a Whopper of Its Work

D work in Informed said it was "the word is getting around." Brief, The Programmer's Editor is simply the

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double precision floating point, an assembler level interface, and (again unlike Borland) separate compilation of program modules for later linking into large programs, so you can develop libraries of code routines. Or disallow these extensions by the /s option whenever you require strict adherence to standard. Prepare your source program using any text editor and Pro Pascal's three-pass compilation will convert a no list relocatable machine code for direct execution. Fast, tight code results which can use the 8037. The sieve runs faster than MS, MT™ or Borland, and produces a program one third the smallest of these.

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LETTERS TO PC MAGAZINE

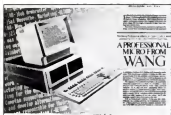


Illustration: Elise Bergman

IN DEFENSE OF WANG

Though Winn L. Rosch's article on the Wang PC was pretty good ("A Professional Micro from Wang," *PC Magazine*, Volume 4 Number 21), you can tell that deadline pressures may have prevented him from learning more about the minor differences of the "Wang Way."

Third-party expansion boards are out there but just not made by companies heavily into IBM-type machines. Magna Computers in Salem, New Hampshire,



and Acknowledge in Framingham, Massachusetts, are just a couple of third-party add-on vendors with products like tape backup, expansion memory, clocks and calendars, and multifunction boards. The plain-vanilla monochrome monitor is pretty good, and after we put on the glare shield, it became the envy of several other IBM PC users here in our office.

The Wang PC keyboard is a copy of the VS Workstation keyboard and is similar to other keyboards Wang has used throughout the years. There is no Esc key on the Wang, probably confused with the Back Tab key. Escape is generated using Ctrl-_. After all, how big does a Return key have to be anyway?

Rosch might want to know that to create an AUTOEXEC.BAT, you simply select Program Development, then Editor,

and then create the file AUTOEXEC.BAT.

For formatting disks, a boot disk has to include DOS.SYS, BIOS.SYS, CONFIG.SYS, either MENU DRV.R.COM or COMMAND.COM, and any printer driver tables or special device drivers for other applications. It would be nice to have only a single command to create a bootable disk, like FORMAT /S on the IBM, but there is more flexibility this way.

William E. Newkirk
Melbourne, Florida

Winn L. Rosch replies:

From the tone and number of letters *PC Magazine* received, it's obvious that the Wang has a fanatical following. I concede to all that the Wang is indeed a good, solidly built, workable computer. However, it rates low on my lists as a PC-compatible computer.

When I wrote of the lack of batch files, I was referring to operation under the Wang environment, which doesn't support them. Before noting the lack of a formatting system option, I checked the Wang DOS manual, which outlines all aspects of the FORMAT command and makes no mention of any /S option. Furthermore, the switch character I used was indeed a slash. Perhaps I received a different version of DOS than our readers.

As to the keyboard, the key I called "Esc" was indeed labeled exactly that. The manual supplied by Wang specified the four-key boot sequence, which did work for me, albeit with the problems I noted. I never mentioned the Wang monochrome monitor because none was supplied to me by Wang.

Regarding service, I actually went to the Cleveland-area Wang repair shop,

and they did not even have documentation for the IBM color emulation board with which I had been supplied. In fact, they were anxious to get a look at the board I had because the people charged with the responsibility of fixing it had never before seen one!

Judging from all the differences various readers have mentioned about their Wangs and mine, I too wonder whether we're all talking about the same machine and software. Engineering changes and software updates have been known to slip mysteriously onto the marketplace. Most readers seem to have had their Wangs for years while the one sent to me was a brand-new model.

CORRECTION

The Fact File for Frank J. Dersler, Jr.'s article "AT&T PC 6300" (*PC Magazine*, Volume 4 Number 23) incorrectly stated that the AT&T 6300 uses the 80286 microprocessor and the 80287 coprocessor. This is a feature of the 6300-PLUS. The 6300 uses a high-speed version of the 8086 microprocessor.

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Do you have a comment, compliment, or criticism about something you've read in *PC Magazine*? A question you'd like to open up to other readers? We'd like to hear from you, preferably on disk. Send it to Letters to *PC Magazine*, *PC Magazine*, One Park Avenue, New York, NY 10016. We regret that we're not able to answer letters personally.

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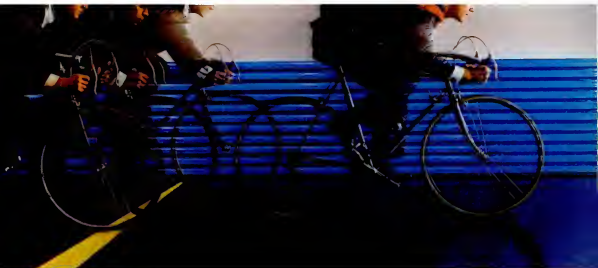
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News

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NEW OPTIMISM REIGNS AT LAS VEGAS COMDEX

BY CRAIG L. STARK

LAS VEGAS—America's City on the Plain took on an unusually businesslike aura when 80,000 dealers, exhibitors, and corporate buyers gathered here for the annual fall COMDEX. New products reflected more the growth of a maturing industry than its riotous youth.

Turbo Lighting, Borland International's \$100 thesaurus/spelling checker ("Lightning Strikes," *PC Magazine*, Volume 4 Number 25) was a crackling success. Microsoft officially christened its long-awaited *Microsoft Windows* (\$99) at a much-ballyhooed "bizarre occurrence" that featured good-natured but self-deprecating railway by the industry's best-known pundits.

Ashton-Tate introduced a LAN-ready *dBASE III-PLUS* (\$695; \$995 for each additional LAN station) that offers even single users more power without programming. And *WardStar 2000* got a new release (2.0) on life.

AT Compatibles

The new generation of PC AT compatibles at COMDEX offered full compatibility with off-the-shelf PC software while more than competing on price, speed, and flexibility.

Tandy Corp. announced the Model 3000, an AT workalike with eight free slots. Epson America Inc. showed its Equity computers in PC, XT, and AT emulations. Other AT entrants included Cordata Inc.'s ATD-8-Q (\$5,495 with a 1.2-megabyte



floppy and 20-megabyte hard disk) and Sperry Corp.'s new PC/IT (\$4,340 without the hard disk).

QMS Inc. was eager to talk about its KISS laser printer, due to be released in March at \$1,995. KISS is the cheapest of

nearly a dozen new entries.

Ion deposition printing made an impressive appearance in C. Itoh Digital Products Inc.'s \$11,995 30-page-per-minute printer. Denser (24-pin) dot spacing and higher speeds at a lower cost kept dot matrix print-

ers competitive.

One of the more exciting technological developments was a joint announcement by Optimem and 3M that may hasten the advent of real-world erasable optical storage devices. Optimem has developed a multifunction drive that can handle all three types of 5¼-inch optical media: magneto-optic erasable, write-once read-many (WORM), and optical read-only memory (OROM).

3M is already shipping its pregrooved, plastic-based, erasable, magneto-optic disks to Optimem, and a fully functional prototype of the drive was demonstrated at the show.

While 4.7-inch CD ROMs and 5¼-inch OROMs are not user-recordable, they are a natural for applications such as electronic publishing. Sony Corp.

(continued on page 35)

Mass Data Storage Finds Mass Appeal at COMDEX

BY CRAIG L. STARK

If optical devices are the sizzle in mass storage, magnetic media continue to be the steak, as the multitude of tape and removable hard disk introductions at COMDEX demonstrated. Much as the high demand for expansion slots fostered increased add-on board capacity and functions, shrinking chassis sizes have produced bundled

packages and larger-capacity internal drives.

Massaging the Media

Several of the new and space-saving magnetic media products included:

- **IDEA's Diskxx**, a "zero footprint," twin 10-megabyte removable Winchester drive (only 2½ inches high; it fits under your monitor) at \$3,995. IDEA's new Diskit series of in-

ternal hard drives range from 20 to 120 megabytes (\$1,495 to \$9,595).

- **Emeraid's 4000 series**, which combines ¼-inch cartridge tape backup, a hard disk (30 to 118 megabytes) that can be formatted as a single volume (breaking the 32-megabyte DOS limit), and a six-slot powered expansion chassis (\$6,540 to \$12,070).

(continued on page 35)



The Most Powerful LAN Fits on a Disk.

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Optimism Reigns

(continued from page 33)

introduced its CDU-5002 CD ROM, designed to fit into a 5½-inch full-height floppy opening at a price of \$795 each. Tecmar also introduced its standalone CD Massfile reader at \$1,695 (plus \$295 controller).

Tape Backups

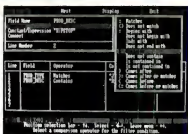
The importance of tape backup systems was much in evidence, with new entries from Alloy, CMS, Emerald, Everex, Percom, Sigma Designs, IDEA, and Western Digital.

Using the alternative removable Winchester technology, IDEAssociates Inc. and Kustom introduced new models. Western Digital Corp. joined Plus Development Corp. and Mountain Computer Inc. in bringing out a plug-in hard disk (10 megabytes, with additional user-expandable memory, from \$1,095).

One bright idea at COMDEX was NEC Home Information's \$799 MultiSync monitor, a "smart monitor" that automatically adjusts its sweep speed and resolution to any of the three IBM graphics boards (CGA, EGA, and Profession-



Microsoft Windows was the guest of honor at a COMDEX party. Announced in 1983, the \$99 marvel is vaporware no longer.



Ashon-Tate welcomed the opportunity to show off its new network-compatible version of dBASE III-PLUS.

al). Tektronix took an alternative approach with its high-resolution (640 by 400) RGB system using a proprietary liquid-crystal shutter technology.

Boards Show True Colors

In addition to monitors, new multipurpose graphics boards were introduced to reduce slot-competition and increase performance. The new single-slot AST-3G (\$600), for example, handles software written for IBM's Enhanced Graphics Adapter, the regular color graphics board, the regular monochrome display, and the Hercules graphics card and provides room for adding up to 256K bytes.

Similar features characterized the Quadram QuadEGA+ and the STB EGA Plus, each at \$595. The Paradise Modular Graphics card (\$395) continues

to allow regular color/graphics software to run in varying shades of gray or green on PC monochrome displays and in 16 colors on a color monitor. ■

Software and Modems: Speed But No Surprises

BY CHARLES BERMANT

LAS VEGAS—Software and modems shown at COMDEX are best described as "more of the same." In both fields, speed has become a paramount goal, with a spray spreadsheet or a hybrid baud rate often used as a product's only selling point.

The biggest software story at COMDEX had already been the talk of the industry for 2 years. At a first-night party, *Microsoft Windows* was roasted by its creators and then distributed to party-goers from a golf cart.

Although Lotus Development Corp. ignored the show, other software giants used COMDEX as a forum for showing product upgrades. Both *dBASE III-PLUS* and *WordStar 2000* were shown with their respective enhancements.

Memory-resident software took several new turns. Borland International of Scotts Valley, Calif., used COMDEX as an opportunity to show off *Turbo Lightning*.

Even though it didn't have a booth, LaSalle Micro of Schaumburg, Ill., talked up its \$95 *BackComm*, a memory-resident communications program capable of automatically retrieving MCI Mail and stock quotations at predetermined intervals.

The 2400-bps modem, first introduced at the spring '84 COMDEX, saw countless new entries this year. Some pushed even that limit: Rascal-Vadic of Milpitas, Calif., introduced the \$1,495 9600VP, which operates at 9600 bps with error control and data compression. The unit also includes 300- and 1200-bps capabilities.

Hayes Microcomputer Products Inc. of Norcross, Ga., introduced a 512K-byte version of its Transet printer and communications buffer, along with a series of internal 2400-bps modems.

Novation Inc. of Chatsworth, Calif., introduced its 2400 Professional (\$795; \$895 with software.) The package allows for changing modules as user communications needs change. Various types of firmware containing error-checking and networking protocols are designed to slide directly into the back of the unit.

Some companies offered higher-baud modems at a budget rate. CTS Datacomm of Eden Prairie, Minn., introduced a line of \$395, 2400-bps modems in standalone, rack, or card configurations, and Anchor Automation Inc. of Van Nuys, Calif., showed its \$599 Signalman Lightning, a 2400-bps Hayes-compatible unit. ■

Mass Storage

(continued from page 33)

- Percom Data's Expander Plus, which provides space for any two half-height storage units, six slots, a power supply, and an AC line projection and control (\$995).
- Tallgrass's Grasshopper 20-megabyte tape backup system (currently OEM), using the new 3M DC-2000 minidata cassettes and PC/T formatting.
- Alloy's FT-60 ½-inch car-

tridge backup unit, which requires no separate Controller card (\$995). If combined with 25- or 50-megabyte hard disks, prices are \$3,295 and \$4,295, respectively.

- Sysgen's 20-megabyte hard disk/60-megabyte cartridge tape "Flat Pak" (\$2,095).

- Kustom's 10-megabyte internal half-height removable Sunflower MS 10 IR Winchester (\$2,245).

- Sigma Designs' OneReel portable 10-megabyte tape backup unit (\$995).

- CMS's Power Twin, combining half-height hard disk (10 to 30 megabytes) and tape backup units (\$1,989 to \$3,389).

- Tandon's single-slot 21-megabyte plug-in DISKARD 21 (\$995).

- Everex's Excel 20-20 standalone combination of a hard disk and streaming tape cassette, with two additional expansion slots (\$2,995). ■



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Ad Number 2128/84

Printers at COMDEX: Hot Type at the Right Price

BY BILL HOWARD

LAS VEGAS—For printer makers, standing still at COMDEX meant losing ground. Dozens of new printers debuted, ranging from under-\$700, 24-pin dot matrix machines to the \$15,495, 45-page-per-minute C. Itoh/Delphax ion deposition printer (see accompanying sidebar).

Laser printers finally broke the \$2,000 barrier with the \$1,995 QMS KISS, which runs at six pages per minute (ppm). Nearly a dozen other makers showed shells for 8- to 12-ppm printers using Canon, Hitachi, Ricoh, and Toshiba engines. To keep KISS company, C. Itoh showed the 10-ppm LIPS, its Laser Image Printing System priced at \$3,500.

Some new laser printers have the ability to merge previously created forms with new data. Several offered 200- to 250-page cassettes, many with right-order output stacking.

Several new laser units accept 8½ by 14 paper and offer Diablo, IBM, and Epson emula-

tions in addition to the Hewlett-Packard LaserJet.

Convenience features were not overlooked, either. Genicom Corp. and Panasonic Industrial Co. showed "zero tear-off" dot matrix printers that don't waste a page every time paper is torn off. Several companies showed sheet and envelope feeders with up to six bins for laser printers.

The daisy wheel market was quiet, except for a handful of new models priced under \$1,000.

New 24-pin, near-letter-quality dot matrix printers included: NEC P6 and P7, \$695 and \$895



Genicom's \$2,995 5010 laser printer has various cartridge fonts.

for standard and wide carriage models respectively; Epson LQ-800 and LQ-1000, \$799 and \$995; and Star Micronics' wide-carriage NB-15, \$1,449.

Lasers, Ions, LEDs

The introduction of 30- to 45-page-per-minute ion deposition printers jointly developed by C. Itoh Digital Products Inc. and Delphax Systems was one of the show's highlights. Four models offer a choice of 240- or 300-dots-per-inch resolution and 30- or 45-page-per-minute output at prices from \$11,995 to \$15,495. Delphax officials say that ion deposition printers are faster and more reliable than laser printers and print quality doesn't degrade as quickly.

Other lasers at COMDEX: Genicom 5010, 10 ppm, Hitachi engine, \$2,995 (\$3,495 in HP LaserJet Plus emulation); QMS-PS 800, PostScript compatible, 8 ppm, \$5,895 with 2 megabytes of RAM; GTC Technologies Blaser, 8 ppm, \$2,995; NEC's LC-800, using an LED array, 8 ppm, \$2,995; Canon LBP-8 A2, 8 ppm, graphics-oriented, \$4,300; ITT Qume LaserTen, 10 ppm, Hitachi engine, \$2,895 (\$3,395 emulating LaserJet Plus); Ricoh LP4080R, 8 ppm, no price set. ■



Canon's \$4,300 LBP-8 A2 laser printer offers graphics-oriented capabilities at a swift 8 ppm.

Electric Dreams

What is ion deposition printing? A print cartridge creates an ion-charged image on the printer's receiving drum. The image is then toned with dry ink and transferred to paper. High-pressure cold fusion fixes the image on paper. The paper is ejected while the drum is scraped clean and an erase rod removes any electrical charge. With ion deposition printing, no heat is involved. Prints made at the COMDEX press introduction were sharp, although the print surface appeared slightly glazed.

—B. H.

RGB Monitors: New Technologies Smash Former Pixel Parameters

BY LISA KLEINMAN

LAS VEGAS—While manufacturers of RGB monitors seem to agree with PC users that the standard 320- by 200-pixel resolution isn't good enough, new products announced at

COMDEX and some well-established monitors on display there proved that there's more than one way to get crisp color text and graphics.

Two major players in the monitor market, NEC Home Electronics Inc. and Tektronix Inc., introduced new monitors that use unique technologies to achieve resolution comparable to the IBM Enhanced Color Display's 640 by 350.

NEC's \$799 MultiSync, which the company bills as "the intelligent monitor," is compatible with all three IBM Graphics Adapters—Color, Enhanced, and Professional. The MultiSync, available in February 1986, adjusts itself to match the scanning frequency of any of the boards you install.

Tektronix announced the \$825 LCS 1220 Display, part of its Color GraphText System that includes a modified version of the Sigma Designs Color 400 card and an IBM PC emulator card. The new Tektronix monitor combines a monochrome CRT with a "liquid-crystal shutter"—a liquid-crystal optical switch sandwiched between two color polarizers and a neutral polarizer. You view the monochrome display in color through the liquid-crystal shutter, so the resulting text and graphics are clear and sharp. The LCS 1220 and the entire Color GraphText System are currently available directly from Tektronix.

With the EGA market well covered, many color monitor

manufacturers are targeting CAD/CAM users with units that compete with IBM's Professional Graphics Display. Wyse Technology introduced the WY-700 (\$1,595), a white phosphor monitor that displays text and graphics at a 1,280- by 800-pixel resolution. While aimed at CAD users, the WY-700 also runs standard PC software. The WY-700 was available as of December 1985. ■



Tektronix's color LCS 1220 has a 12-inch liquid-crystal shutter display.



Wyse Technology's white phosphor WY-700 has 1,280- by 800-pixel resolution.

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Adjustable Cursor Speed/Up, Dn (while running application)	Yes	No	No
Adjustable Cursor Speed/FL, LR (while running application)	Yes	No	No
Buttons Definable (while running application)	Yes	No	No
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User-Definable Alternate Cursor Movement	Yes	No	No

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AT-Compatible Armada Sails at Fall COMDEX

BY CHARLES BERMANT



The AT-compatible Tandy 3000 has 8-MHz speed and supports XENIX 5.0.

LAS VEGAS—The art of cloning has been elevated to a higher plane, with dozens of PC manufacturers now offering their own versions of the 80286-based IBM PC AT.

IBM's once-scarce desktop is still the yardstick, with competi-

tors attempting to outdo its price and performance. Prices dip as low as \$2,000, with many claiming to have processing speeds 60 percent faster than the market leader.

The \$2,599 base-priced Tandy 3000 could be the flagship of the new AT fleet. Currently available only at Tandy's 1,300-store retail network, it runs at an 8-MHz clock speed and will support XENIX 5.0.

Market analyst Michael Goude of the Yankee Group believes that it is Tandy that will generate the most price pressure for IBM. Tandy vice-president Ron Stegall, however, feels that IBM's concern about the AT's price centers on not the competition but its relationship to its own XT. "They have room to move on the AT's price and have plans for the ideal time," he says.

HP's Compatible

Perhaps the least expensive unit is the AMT 286 from American Micro Technology. For \$1,995, AMT includes one 1.2-megabyte disk drive and a 20-megabyte hard disk. The 6-MHz version is available now, with a 10-MHz upgrade slated for early next year.

AMT is located at 1322 E. Edging Ave., Santa Ana, CA 92705; (714) 972-2945.

The Cordata (formerly Corona) ATP is a transportable that claims to be 60 percent faster than the IBM AT and 20 percent faster than the Compaq 286. The machine runs at 8 MHz and is available in two configurations: \$4,286 for the base machine; \$5,595, with a 20-megabyte hard disk.

MAD Intelligent Systems of San Jose, Calif., has positioned its MAD/2 line outside of its

current OEM affiliation, with a price range of \$3,500 to \$4,000. It will run at 6 or 8 MHz and has the smaller footprint of the PC-XT.

The Apricot Xen, which the Fremont, Calif.-based company calls "a fast PC and not an AT clone," is a \$3,995 unit that includes *Microsoft Windows* and a 20-megabyte hard disk. It also claims to have a 60 percent speed increase over the IBM AT. Apricot says the Xen personal computer will be available in early 1986.

Waiting for 5.0

These machines may represent a low well of hardware riches, but their potential may not be fully realized until this year's projected release of DOS 5.0, which is expected to relax the restriction of the 640K-byte address space.

Says Goude, "The market for AT-compatibles will be steady, with some delay in acquisition for people waiting for IBM prices to come down. But without DOS 5.0, the power of the 80286 remains untapped."

Micro-to-Mainframe: Prices Down, Features Up

BY CHRIS JOHNSTON

LAS VEGAS—Communicating with a mainframe from a PC keyboard is no longer a pipe dream. Fall COMDEX saw several introductions of new micro-to-mainframe hardware and software.

Trisystems of Nashua, N.H., announced the \$699 5251 Model 12 terminal emulation board that fits into the PC expansion bus. It gives users instant access to the IBM System 34/36/38 minicomputer when they're not using their PC. The Model 12 is being shipped now.

ABM Computer Systems of Irvine, Calif., announced an enhancement to its 3270 cluster controller. The ICP can now handle up to 13 users.

The ICP, a single board containing memory, a microprocessor, and an I/O device, fits in

the server PC's expansion slot. The 13-user cluster controller costs \$2,195 and is bundled with appropriate software.

AST Research of Irvine, Calif., exhibited a new cluster controller—the AST-5250/Local Cluster. The package supports up to five users, emulating 5251, 5291, or 5292 display terminals through one PC to a 34/36/38 minicomputer.

The package includes two boards and software. The price of the AST-5250 was unavailable at press time, but AST plans to ship in the first quarter of 1986.

A Clean Gateway

Gateway communications, the specialty of both INS Corp. of Mobile, Ala., and Gateway Communications Inc. of Irvine, Calif., put new hardware on display at COMDEX, including

the \$1,995 SDLC gateway adapters, and the \$2,275 8100 gateway adapters. Gateway Communications' SDLC gateway adapter costs \$1,795; the 8100 adapter, \$2,795.

Both systems can support up to 32 users. The Gateway Communications system is configured for eight users, but it can be upgraded at an additional cost. Gateway also offers optional 3270 terminal emulation.

Just the VAX

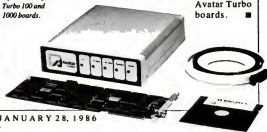
Intelligent micro-to-mainframe software at COMDEX was hard to find, but a few products stood out.

Avatar will bundle its \$100 3270 terminal emulation software with future Turbo 100 and 1000 boards.

Polygon Software Corp. of St. Louis, Mo., announced software that can connect VAXs and PCs. *Polyshare* acts as a librarian on the VAX. Users can upload a file and later retrieve part or all of that file.

Polyshare is priced between \$995 and \$3,000, depending on the CPU, and will be shipped in early February.

Avatar Technologies Inc. of Hopkinton, Mass., tailored its 3270 terminal emulation software for its previously released Turbo 100 and 1000 boards. Avatar Turbo users can now communicate with mainframes without knowing mainframe protocols. The software costs \$100 and will be bundled with future Avatar Turbo boards.



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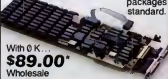
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CIRCLE 159 ON READER SERVICE CARD

■ FROM THE EDITOR'S SCREEN ■ BILL MACHRONE

SPARE ME THE SERMON



Computers are supposed to change our lives for the better. But should software proselytize? The subtler the message, the more dangerous it is.

I've seen a lot of software products lately that push a point of view. Some products do it overtly and others, more dangerously, covertly. Some overt examples are the Human Edge products, *Sales Edge*, *Negotiation Edge*, and *Mind Prober*. Based on psychological principles, these programs purport to teach you about human relations. Their principles are controversial, but at least they are clearly stated. As a consumer, you can see what you're getting and determine its usefulness to you.

Sales Edge, after all, may be useful to salespeople who love the chase as much as the close. It may suggest alternatives or strategies that they hadn't thought of. On the other hand, the professional salesperson knows the gambits and plays every bit as well as the professional chess player knows the standard openings.

Mind Prober is a computerized parlor game rather like one of those magazine personality quizzes. Oh, *Racter* is beginning to replace it, but it's fun, and harmless, too.

ARTIFICIAL EXPERT? An insidious and more subtle trend is the rash of decision-support programs that claim to use artificial intelligence. Not only do these programs misrepresent the concepts of AI, they can subvert your thinking by positing oversimplified views of reality.

The artificial intelligence and expert-systems buzzwords have hooked a generation of journalists hungry to tell the world about the latest and greatest technical developments. Interviewers everywhere are

putting words in the software authors' mouths: "Does this new product use AI?"

Hawkers of new products are quick to respond affirmatively, sensing that their products will somehow be considered second-rate if they don't "have AI." Some, eager to climb on the AI bandwagon, bury their comments in a platterful of waffle words: "Yes, our new product embodies emergent principles of machine intelligence." Others deny that they're using AI with a different stream of bafflegab. "Well, I wouldn't call it artificial intelligence per se, but more on the order of machine-guided adaptive learning with selective pruning during iterative analysis." Very helpful.

Serious AI research is suffering at the hands of charlatans and obfuscators. The damage, however, is nothing compared to that being wreaked by pretenders to the expert-systems label. Real expert systems can do useful things, such as diagnose can-

cer and desk-check COBOL programs. Real decision-support software is an outgrowth of high-end financial planning systems. It's good for modeling the effects of foreclosing on Third World countries.

The pretenders would have you believe that you can use software to determine why your assistant is always late coming back from lunch and what you can do about it. This software confirms the principle that no problem is too trivial for computerized overkill.

AUTHORITARIAN SOFTWARE I've just seen a demo that scares me. It's for a product that covertly influences human interaction in a negative and constricting way. Its principles are high-minded enough, but the implications are disquieting. The package is ostensibly communications software, but it funnels corporate communications into a straitjacket dictated by a philosophy of human interaction that leaves anyone who doesn't accept its precepts out in the cold. The purpose of this software is to "save" your company from bad or inefficient communications, whether you want to be saved or not.

It does this by organizing all messages as requests, denials, commands, counteroffers, and the like. It allows for no shades of gray. A message either fits the structure or it isn't transmitted.

To its credit, the package does a great job of organizing your communications. When you send a message to someone and that person replies, it chains the messages together so that you can easily reconstruct the thread of the conversation. If you've



InfoWorld on EasyLAN
 "Any product that brings
 down the cost and improves
 the ease of use for LANs is
 for the better."

Buy A Local Area Network For Less Than \$100 Per PC

STOP buying expensive duplicate PC peripherals. Usually your peripherals just sit idle. If your office owns two or more PCs can you justify a costly printer and multiple disk drives for each PC? How often are your printers actually busy? Thirty minutes a day? An hour a day? Even your expensive hard disk is used infrequently.

The obvious solution to avoid expensive duplicate peripherals is a local area network that allows you to share printer and disk drives. But until now LANs have cost in excess of \$1,000 per PC.

INTRODUCING THE EasyLAN™ OFFICE NETWORK

EasyLAN shares printers and disk drives between IBM PCs. EasyLAN can save you \$1000 or more per PC by eliminating duplicate equipment purchases. EasyLAN advantages:

- EasyLAN shares printers, disk drives, and information
- Easy to justify—less than \$100 per PC
- Easy to install
- Easy to operate
- Easy to order
- EasyLAN performs in the background.

EasyLAN's low price matches the small business user's cost-sensitive budget. It is the office network solution for less than \$100 per PC including cables and software. At this price, the RISK IS LOW, and the BENEFITS ARE HIGH.

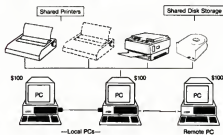
EasyLAN performs its operations concurrently in the background. EasyLAN communications, file transfers and printer operations all take place while each PC simultaneously performs such normal DOS applications as Lotus 1-2-3,™ WordStar™ and dBASE.™

EASY TO OPERATE

EasyLAN network software allows PC users to share printer and disk peripherals. PCs are connected by EasyLAN cables plugged directly into your PC's standard serial communication ports and EasyLAN can be used with digital PBXs. EasyLAN supports geographically separated PCs using modems and dial-up lines.

EasyLAN's performance meets your small office requirements to move word processing documents and spread sheets between PCs. For example, EasyLAN can move a 10 page document between two PCs, as a background operation, in less than one minute!

EasyLAN loads automatically at boot time. It manages the PC's serial and parallel ports for



EasyLAN Office Network

communications and printing. All EasyLAN operations may be started from any connected PC.

Printer sharing operates transparently with existing programs. Print files are automatically written to disk and scheduled for printing. Multiple printers per PC may be designated for specific office tasks.

For example, one PC can interface with Printer 1 for general purpose output, with Printer 2 for continuous-form letterhead stationery, and with Printer 3 for printing continuous-form invoices.

Disk sharing uses EasyLAN's COPY command, EZCOPY,™ to move files to and from PCs. Files are stored or retrieved from disk storage and the Directory is updated. The high-capacity benefits of just one hard disk can now be shared by several PCs.

All communication operations are protected by a unique password assigned to each PC so security is maintained.

EASY SPECIFICATIONS

Each PC in the network requires an individual copy of the EasyLAN software, 128k of memory, a serial communication port(s), and DOS 2.0 or above. For your convenience, EasyLAN diskettes are not copy protected. EasyLAN runs on all IBM PC models (PC, XT, AT, and Jr) and compatible PCs.

"I look for those products that make my job easier and save me and my company money. I believe EasyLAN does both."
 Carl Warren
 Editor, Mini-Micro Systems

EASY TO INSTALL

EasyLAN can be installed in less time than it takes to enjoy your coffee break. Just plug the EasyLAN cables into existing serial ports. EasyLAN's PRINT, COPY and DIRECTORY commands are very similar to DOS commands.

EASY TO ORDER

EasyLAN is immediately available and easy to order. For a two PC network, start with the EasyLAN Kit. For each additional PC in the network, order the EasyLAN Expansion Kit.

The EasyLAN Kits include program diskettes, manuals and cables, which are shielded to maintain signal quality. All parts are warranted for one year. EasyLAN program diskettes may be purchased individually; you supply your own cables, modem links or PBX connections.

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EasyLAN

■ FROM THE EDITOR'S SCREEN

used any of the public electronic-mail systems, such as MCI Mail, you can see the virtue of such a feature. The chain grows with each message. The software organizes your pending messages into requests and demands that you must respond to and responses that others owe you. It uses dates and even times to order the lists.

If this constriction doesn't sound like too high a price to pay for efficiency, consider that this is how people who don't like each other communicate. It is not a foundation for trust and mutual cooperation. In fact, in most organizations, the use of techniques such as this is virtually guaranteed to set people on edge and at one another. Like anything that mechanizes human interaction, such a system inevitably makes that interaction less human. The person who demonstrated the package to me asked me what I thought. "Communications software designed by Nazis," said I.

This package, with its messianic mission, will unfortunately be sold not to individual users but to the highest levels of management as a way to cure the company's interpersonal communications ills. If someone upstairs buys into this concept, it's a whole new ball game for you and everyone else in the firm. If you don't like the new rules, you can just find yourself another stadium.

Ironically, the package is called *The Communicator*. I equate this kind of communication with raising horses in a high-rise building. People in corporations need room to roam, freedom to grow, to express opinions, develop points of view, and interact.

Why would someone produce such a package? Its creators are fervent believers in mechanized, highly structured communications. It works for them, and they are sure it'll work for you. They're converts to this way of thinking and they want you to be, too. What's next? Moonie spreadsheets? A Bhagwan Rajneesh database?

Now I'm not singling out this one package to rail against, but life is tough enough in the trenches without having to deal with software designed to browbeat you. I'd feel just as strongly about any other product that forced you to adopt a new philosophy of life before you could use it effectively. We need tools, not tirades.

So beware of any product that requires

an hour or two of indoctrination before it can be demonstrated. Beware of any product that purports to change your life. Beware of any product that is more of a treatise on how to run your life than a tool to

help you get the job done. Beware of any product whose usefulness isn't apparent in a minute or less.

And hope that the folks in the executive suite feel the same way about it. ■

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THE RESULTS ARE IN

We found the printer which has all the features anyone could want. We've introduced it as the Aprotex Daisy 1120, a real heavy-duty workhorse printing at 20 characters per second. The manufacturer is Olympic Co. Ltd., a highly respected Japanese firm.

FEATURES GALORE

This printer has it all. To start with, it has a front control panel with indicators for Pitch Selection which allows for 10, 12, or 15 characters per inch (CPI) or Proportional Spacing. There is a Select (Online) button (with indicator) and a Line Feed button. You can also set Top-of-Form or Form Feed with the touch of the TOF button. Other front panel indicators include Power and Alarm.

To load a sheet of paper, simply place it in the feed slot and pull the paper bail lever. The paper feeds automatically to a 1 inch top margin and the carriage aligns to the selected left margin. In this manner, each page will have identical margins.

You can also continue to use your computer while the Daisy 1120 is printing.

The built in 2K buffer allows a page or two of concurrent printing and use of your computer for the next job. To really take advantage of your printer's optional features, the automatic Cut Sheet Feeder eliminates tiresome paper handling. Also available is the adjustable Tractor Feed option. *Compare our option prices!*

Best of all the Daisy 1120 is quiet: only 58 dB-A (compare with an average of 62-65 dB-A for others).

COMPLETE COMPATIBILITY

The Daisy 1120 uses Diablo® compatible printwheels. You can pop in a 10, 12, 15 pitch or proportional printwheel and use paper as wide as 13½". At 15 CPI you can print 165 columns—a must for spreadsheets.

The Daisy 1120 uses the Diablo Hytype II® standard ribbon cartridges. Again universally available.

Not only is the hardware completely compatible, the control codes recognized by the Daisy 1120 are Diablo 630® compatible (industry standard). You can take advantage of all the great features of word processing packages and automatically use superscripts, subscripts, automatic underlining, bold-face (shadow printing) and doublesstrike.

The printer has a set of rear switches which allow the use of standard ASCII as well as foreign character printwheels. Page length can be set to 8, 11, 12, or 15". The Daisy 1120 can also be switched to add automatic line feed if required.

THE BEST PART

When pricing a daisy wheel printer with all these features (if you could find

one), you would expect to pay hundreds more. The options would add much more, but our exhaustive research has paid off for you the computer user. We can now offer this printer for only \$299.95. Order yours today!

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Try the Daisy 1120 for 2 weeks. If you are not satisfied for ANY reason we will issue a prompt refund. A full 1-year parts and labor warranty is included with a 72-hour repair policy. Another indication of quality and reliability.

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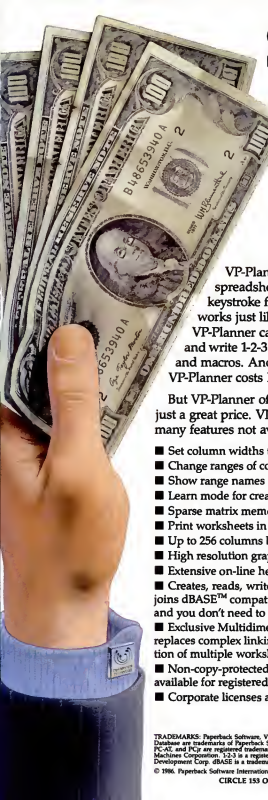


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CIRCLE 153 ON READER SERVICE CARD

SYSTEM REQUIREMENTS: VP-Planner works on the IBM PC, PC-XT, PC-A/2 and compatibles with DOS 2.0 or higher and at least 256K memory. Graphics card optional to display graphics.

PM

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CIRCLE 326 ON READER SERVICE CARD

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SoftCraft, Inc.  8

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All of Word's powerful formatting and on-screen editing features can be used with *FancyWORD*, including justification, multiple columns and footnotes. This entire page was prepared with Word and printed with *FancyWORD*.

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LETTERS . . . LOTS AND LOTS OF LETTERS



Graphics adapters and other graphics gripes, printer drivers, disk drive speeds, barriers and buffers, the interleave factor. . . Readers react and Norton responds.

The mail I've been getting in response to my columns has been so interesting lately that I'm again going to devote this space to discussing it.

First, I have a few things to say regarding graphics adapters.

Lately I've been singing the praises of the Hercules graphics card as *the de facto* standard for monochrome graphics, pointing out now the real biggies in software—the *1-2-3s*, the *Frameworks*, and the *Microsoft Words*—all offer fine-tuned support for the Herc card. However, Hercules's competitor, Paradise, takes me to task, arguing that the dominant graphics standard is the IBM color graphics standard. Paradise's view is that the only sensible way to provide graphics on a monochrome screen is to simulate the color graphics screen, with color interpreted in shades of gray.

To back up its opinion, Paradise points to the Softset hot list. Of 163 graphics applications for the PC on the hot list, only 11 support the special Hercules format, while all 163 run on the IBM Color/Graphics Adapter. Therefore, all 163 packages run on Paradise's monochrome version of the IBM color graphics standard.

That's a good point. It's great to be able to run any graphics software on your monochrome screen. But quite frankly, those graphics will be stinko because the IBM color graphics standard is stinko, even in its high-resolution mode. That's why IBM gave us both the Enhanced Graphics Adapter and the ever-so-beautiful (and ever-so-expensive) Professional Graphics Adapter. Besides, while few

packages (albeit the most important ones) use the Hercules adapter, they make optimum use of the Hercules mode's higher graphics resolution, and the improvement really shows on the screen.

So if you want monochrome graphics, you go with Paradise and get to use all the software, but with lousy resolution. Or you go with Hercules and get great resolution on a handful of programs (but if the handful includes the software you use. . .). Or you go with IBM's Enhanced Graphics Adapter and get an officially approved IBM monochrome graphics mode that even fewer programs know how to use. Whatever you choose, you win and you lose.

MORE GRAPHICS GRIPES I also have a few things to add to my previous discussions of the semiwonderful (and semitroubled) Enhanced Graphics Adapter. When I last broached this par-



ticular topic, I mentioned that the EGA has the nifty feature of accepting loadable font pictures. But I pointed out that while this new feature is wonderful, it lessens the card's compatibility with the standard IBM Color/Graphics Adapter, since the Color/Graphics Adapter can use ROM-based character fonts that the EGA can't.

For my example I mentioned STSC's APL character font on a ROM chip for the Color/Graphics Adapter. While I was correct in saying that the APL ROM wouldn't work with the EGA, I should have known better than to say that's a problem: The sharpies at STSC have long ago adapted their software to load the APL character font into the EGA without any ROM hardware.

That's the way to go, but it still leaves us with the same problem that I was kvetching about: There are just too many graphics adapters for software to adjust to, and the EGA, no matter how wonderful, has just added to the problem.

PRINTER PROBLEMS Brian Schmidt also wrote in, saying that compatibility problems with graphic formats are trivial compared with printer compatibility problems. For every screen graphics format there are about two dozen different printer command formats for our programs to cope with. Of course, more programs have to learn fancy dances to keep up with graphics screens—including every single memory-resident pop-up-type program—than have to learn all those printer codes. But

■ THE NORTON CHRONICLES

if you look at the printer drivers that come with the best word processors, you'll be amazed and appalled. Over 100 different drivers are needed to deal with all those incompatible printers. Ugh.

WORD PROCESSING WOES Mr. Schmidt also brought up the problem with the internal format of the word processor's data files. Sometimes you must feed files into other programs, and typically files are infested with weird and wonderful codes that mean holdface here and underline there. These codes play havoc with data interchange. But help is on the horizon.

The cavalry is some IBM magic called Document Content Architecture, or DCA, which is IBM's de facto standard for describing the format and structure of text data. More and more word processing programs are adapting to the DCA standard. The pioneers in this movement that I'm aware of are Lifetree's *Volkswriter* (thanks to the vision of Camilo Wilson) and *Microsoft Word*, and there are probably others I don't know about.

DCA may look like a ho-hummer right now, but the day will come when you'll consider it more of a lifesaver for your data than any software using that slogan today.

THE 32-MEGABYTE BARRIER A while back I was discussing the "32-megabyte barrier," a limitation on the size of the disks that we can use in our PCs, that's designed into DOS as we know it now. That discussion prompted Emerald Systems to write in, mentioning that it had broken the barrier with its disk systems and complaining that I hadn't covered its solution to the problem. Well, I'd been talking about a general problem with DOS, but it is interesting and worthwhile to know that disk vendors, Emerald Systems in particular, are finding ways around the limitation.

THE DORAN TEST REVISITED

We've been hammering away on Joe Doran's "Doran Test," which provides a rough-and-ready measure of the working speed of a disk drive. The test involves using DOS's CHKDSK program to give you the capacity of a disk (or hard disk partition) in kilobytes and using my

DT-Disk Test program to read through the whole disk. You divide the kilobyte capacity by the number of seconds it takes DT to read the entire disk and you get a pragmatic kilobyte-per-second

speed rating, which is useful for comparing the performance of different disks. I've been scaling the results in relation to a stock XT's hard disk, which clocks in at 43.8K bytes per second.

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In Joe Doran's own tests a MicroScience 20-megabyte disk performed at a relatively poor 0.76, one-quarter slower than an XT. By comparison, the customary 20-megabyte disk in an AT has a rela-

tive speed of 1.6.

But Gary Kinsman writes in that when he "Doranted" his MicroScience 20-megabyte disk, presumably the same as Joe's, he got a much more respectable

1.3 performance factor. The obvious question is, why?

THE INTERLEAVE FACTOR It could just be that Gary's disk model is faster. But a more likely reason is the interleave factor. Interleaving is the foxy trick of shuffling the sectors on each track of a disk so that they appear in a nonsequential order. The idea is that when the interleave factor is properly tuned to the speed of the disk, the speed of the computer, and the average way the disk is used by the operating system (which varies from operating system to operating system), you get—if everything goes as planned—dramatic improvements in speed.

Texas Instruments used interleaving to good advantage when it formatted its floppy disk: a TI Pro computer can read its own interleaved floppy disks much faster than it can read a noninterleaved IBM PC floppy disk, which has the same nominal format but a different actual placement of the disk sectors.

On the other hand, I've heard reports that the ever-popular Bernoulli Box performs much more slowly on a TI computer than it does on an IBM PC or AT. The difference in speed is thanks to a good choice of interleaving in the IBM version and a poor choice in the TI.

But don't think interleaving is something you can tinker with or have any choice about. You have to take it as it comes. (Am I about to get a flood of letters from folks telling us how we can be the masters of our own interleaved destiny? I hope so.)

A bigger factor in practical disk performance, though, and something you can do something about, is the number of DOS disk buffers. I covered that issue in more detail sometime back, but let me repeat the summary.

IBM is leading us down the garden path when it suggests that the default of 2 or 3 buffers might be enough. Poppycock! Probably the minimum number you should have installed is 16, 32, or even 64 buffers.

If you don't know how to set the number of disk buffers, grab your DOS manual in a hurry and read up on how to specify it in the CONFIG.SYS file. You'll soon be glad you did. ■

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The Toolbasket functions eliminate the need for extensive use of assembly language when interfacing with TopView. The Toolbasket's library includes functions to control window, cursor, pointer, and printer operations. It also provides access to TopView's cut-and-paste facilities and offers debugging services.

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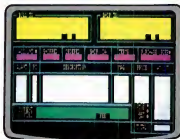
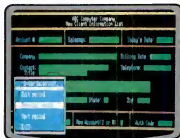
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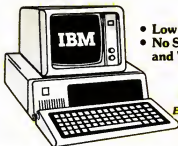


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THE AGE OF THE CUSTOMIZED CHIP

An application-specific chip can replace a whole collection of off-the-shelf chips, using less power and board space. It can also be designed to hide the details of proprietary design.



In the early days of the automobile, Henry Ford would paint the Model T any color you wanted—as long as it was black. And, until recently, integrated circuits were sold much like the Model T—you could buy any IC you needed as long as it was a standard part already designed and manufactured by a semiconductor company.

But a new age of customized silicon is dawning. It's now feasible for an engineer to design a customized IC that can take the place of a whole collection of off-the-shelf chips. Known as semicustom or application-specific ICs (ASIC), these special-purpose chips cost less than the parts they replace, require less board space, and use less power. And because it's difficult and time-consuming to decipher the details of logic buried in customized chips, proprietary design information can be protected from the voracious board cloners—at least for a few crucial months.

WHAT'S IN A NAME. The two names for these ICs come from how they're produced and used. "Semicustom" means that only part of the chip design is customized with the rest being standard. "Application specific" indicates that the chips contain logic circuitry that meets the requirements of a particular application. Instead of building a board or system using general-purpose ICs connected together on a printed circuit board, some of the logic needed for a given application can be placed in a semicustom chip. For the sake of simplicity, I'll refer to both types as semicustom.

Semicustom chips are practical because much of the design and manufacturing is shared by many users, and powerful software can be used to automate many aspects of designing a chip. As you might guess, the software to design, simulate, and test chip designs requires a lot of computing power. Originally, you needed a large mainframe for these programs, but now they run on engineering workstations, and some even work on the AT or the XT.

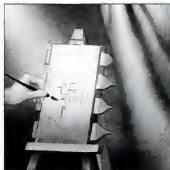
PLDs Semicustom chips include everything from programmable logic devices (PLD) to more complex gate arrays and standard cells. A PLD is an integrated circuit that contains a collection of logic gates, such as the Boolean AND and OR, connected in a standard configuration. A gate array is a regular grid of transistors that can be connected to create the various logic functions needed for a specific

design. And a standard cell starts off, *tabula rasa*, as a blank piece of silicon upon which the engineer places predesigned components.

The design and fabrication costs of a PLD are shared by all buyers. These customers modify the way a PLD's logic gates are wired together by selectively destroying built-in links with pulses of electricity. Since PLDs are customized on-site by the customer, they have by far the fastest turnaround time from finished design to testable chips.

GATE ARRAYS With gate arrays, most of the chip design and fabrication is shared. Gate arrays are more flexible and complex than PLDs but are also harder to design and take longer to produce. The first 75 percent of the chip is mass produced, leaving one to three layers that can be customized. Once the design for customizing a gate array is complete, finished chips can be produced in about 2 months.

However, the flexibility and ease of customization offered by gate arrays exacts a price in wasted silicon. Although vendors claim they are able to effectively use as much as 90 percent of the available chip area, it's not uncommon for 25 percent or even more of an array to be left unused. Even so, gate arrays can be cost effective and are probably the most popular semicustom technology. Because most of a gate array is the same for all customers and that part is produced in extremely high volumes, it is tested very thoroughly.



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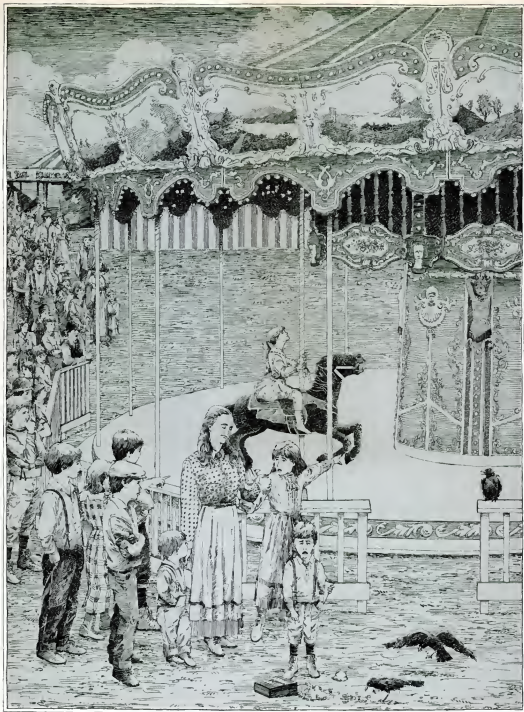
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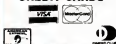
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The Edsun Labs chip translates the signals generated by the 286 processor to look like those of an 8088, so a 286 add-on board can be plugged into a PC and yet be totally transparent to the rest of the system. Faraday Electronics uses customized chips that it has designed in-house to replace standard chips on the IBM PC and AT.

NEW LIFE FOR THE INDUSTRY In addition to the benefits to system designers and end users, semicustom ICs are also good for the semiconductor industry. Advances in IC fabrication have already outstripped traditional methods used to design chips. The number of basic electronic components crammed on a single chip has increased dramatically as technology has improved. The original 8-bit Intel 8080 microprocessor had 4,000 transistors; the 16-bit 8088 in the IBM PC has 22,000 transistors; the 80286 in the AT has 128,000 transistors; and the new 80386 32-bit processor has over 275,000 transistors. During the same period, RAM memory capacity increased from 1,000 bits per chip to the current standard of 256,000 bits, with 1-megabit chips expected to arrive soon and 4-megabit chips already in the process of development.

The exceedingly complex chips of tomorrow with millions of transistors will be expensive to design and debug. Only a limited number of general-purpose VLSI chips, such as microprocessors and memory, are likely to sell in enough volume to justify their development costs. The solution is simple—have customers design their own semicustom chips. Except for creating a few high-volume parts, IC designers employed by semiconductor companies in the future will develop new standard cells, improve the software used to design new chips, and keep looking for ways to put more transistors on each chip.

And when the software used to design chips becomes even more powerful and easier to use, semicustom chips will someday be designed by people with little, if any, detailed knowledge of the underlying hardware. Just as you can create a template for 1-2-3 without understanding assembly language programming, it

will be possible to design a semicustom chip without being an engineer.

When it's as easy to create a semicustom chip as it is to use a library of standard functions in C or Pascal, the divid-

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- **Backup.** Now KEEPTACK means more than file management. It also contains a backup utility that's one of the fastest and most practical. Unlike all other backup programs, our system creates backup diskettes that have the identical file and directory structure as your hard disk's. This means you can actually work from the backup diskettes when your hard disk crashes without having to "restore" first (although KEEPTACK does offer an excellent restore function).

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"KEEPTACK BACKUP KIT" SPECIAL — SAVE \$59

As an introductory offer, you can purchase the KeepTrack Backup Kit — the KEEPTACK program and 50 XT-formatted, labeled diskettes with disk organizer and log cards — at a special price of \$199. (Regular price is \$258.) Good through March 31, 1986. PC/AT Kit also available.

TO ORDER: VISA/MC holders, call toll free 800-628-2828, x700. \$4.95 fee of \$5 will be added. To order by mail, send a total of \$84 for KEEPTACK only or \$204 for the Backup Kit combo to: THE FINCH GROUP, 2390 El Camino Real, Suite 3, Palo Alto, CA 94306. California residents, please add applicable sales tax. For more information on KEEPTACK, call 415-322-6161.

KEEPTACK is not copy-protected.

KEEPTACK includes the program diskette, a User's Manual, and a book — Guide to Disk Organization — that clearly explains the "why's and how's" of disk management.

Requirements: IBM PC/XT/AT, or Compatib; and compatibles with 256K under PC-DOS 2.0 or higher. Works with 80486 hard disks.

24-HOUR TOLL-FREE ORDERING: 800-628-2828 x700

CIRCLE 392 ON READER SERVICE CARD

PC MAGAZINE ■ JANUARY 28, 1986

Cuts disk access time in half Makes Your IBM PC

LIGHTNING[™] Fast!

for copy protected version \$89.95 for unprotected

\$49⁹⁵

Loads with the DOS — always ready as a background program (like Sidekick) to accelerate every disk access. You do nothing — everything is automatic.

You are going to be so amazed when you start to work with **LIGHTNING** installed. Every program that accesses the disk (hard disk or floppy) is made instantly faster -- 2 to 4 times faster.

It is so easy to install and you never

Any disk intensive program (like a database) runs 2 to 4 times faster.

have to do anything again; it does it all for you — like lightning.

LIGHTNING comes to you on a diskette. You simply load it onto your DOS diskette if you are using floppies, or if you have a hard disk, into the DOS area. Simple A-B-C instructions let you get it started the first time in five minutes. Then it is always ready, working automatically in the background any time you boot up.

What's it like to use it? If you have ever worked with or seen a RAM Disk you know what a difference speed can make when working with any program that accesses the disk. Well,

LIGHTNING enables any program to approach the same rapid speed as a RAM Disk, but it does it without the disadvantages. With a RAM Disk there is a constant danger that you can lose your precious data if you forget to copy it back to the disk drive. With **LIGHTNING** you just use your programs normally. You don't have to remember anything.

LIGHTNING has a fun feature that shows you just how fast you're operating. Any time you want, with a couple of keystrokes you can see a screen that keeps a record of how many times you've accessed the disk, and how much time **LIGHTNING** has saved you. It's fun to check it out, and it's always astounding.

When you work with a database program or most word processors, or any time you need to frequently load files into RAM or save them back, you are accessing your disk. It is such a pleasure to cut those times in half and often to one-fourth.

Spreadsheets will speed up their loading and saving. recalculation is not affected.

Another plus — **LIGHTNING** fully exploits Above Board[™] memory for PC's with that addition.

If you have an IBM PC or clone and don't have LIGHTNING[™], we simply have done a poor job explaining it to you.

PCSG since early 1983 has dominated the lap portable market with ROM software such as Lucid spreadsheet and Write ROM that reviewers rated as excellent. We are proud to enter the IBM PC market with **LIGHTNING**. It's a great product that we not only enjoy offering, but enjoy using on our own PC's. It will support IBM PC, XT, and AT.

This is an exciting program. A typical comment from everybody who uses **LIGHTNING** is "I don't know how I ever did without it."

PCSG provides hotline support for the IBM PC.

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Sidekick[™] Borland Int.
Above Board[™] Intel Corp.

■ COMPUTERS IN SOCIETY ■ STEPHEN MANES

FLOSSIE OR THE TRACTOR?



Like a coin with heads on one side and tails on the other, a decision-support system can help you make the best choice. But even the right decision may have unexpected effects.

Well, Bud Jr. certainly got my money's worth out of his college education. What he does mostly is spout sixty-dollar words he picked up from those silk-tie friends of his and tell me how I should modernize the farm like his'n. "Modernize myself right into bankruptcy like your high-roller pals" is what I always say to that, which shuts him up awhile.

Me, I'm getting on, but I keep my end up just fine. Can't say the same for old Flossie. She's not as young as she used to be, and she just can't pull the plow the way she could back when. Used to was she could start off half an hour after the rooster crowed and go till noon without stopping, and then put on the feedbag and then go on past sunset without hardly a whimper. But lately it got so I had to think about putting the old girl out to pasture.

Me and Flossie been together a lot of years, so at first it like to broke my heart to think about it, and we just kept on keeping on. But every chance he got, Bud Jr. kept whining I ought to at least get into the 19th century even if I didn't believe in the 20th, and the least I could do if I didn't want to buy one of them newfangled computers to count the cornstalks was get me a air-conditioned tractor like his'n. Me, what I always say is, if you have to have an air-conditioned tractor, then the next thing you know you'll want a colored TV.

But Bud Jr. takes after his pop in a couple of ways, and I guess I mentioned this and that problem with Flossie once too often because the next thing I know, he traipses in the front door with this little

suitcase. He says I been shilly-shallying long enough (except he used some sixty-five dollar word) and with the help of this here computer I'll make my decision once and for all. He plugs her in and fires her up and plunks me down in front of this little green Martian TV.

This isn't even Greek to me, but Bud Jr. learnt all about this stuff in some school or someplace. He says this is called *Light Year*, which only reminds me of the drought of '37. "It is a decision-making system," says he.

"Something like a coin with heads on one side and tails on the other," says I.

"Watch the screen," says my unamused offspring. I believe I forgot to mention I am Bud Sr.

The first thing that shows up is a little box that says ALTERNATIVES at the top. Then he types in Flossie at the top and Tractor right underneath. Those are my alternatives, no two ways about it.



He fiddles with the keys and the next thing I know there's a screen with the word CRITERIA on the top of it. I would of guessed that was either a town in Kansas or a disease, but Bud Jr. looks at me very patientlike and tells me what it means.

Then he says to tell him what is important in making this decision. "Give me a for example," says I.

"Well, take Initial Cost," Bud Jr. says. "You've already got Flossie, so she's free. A tractor will cost you, say, ten thousand."

"Not if I don't get one of them fancy dudes with the factory air, it won't."

"We don't need to worry about the price till later," says he. And he types Initial Cost on top. Then he moves down a line, and types in Upkeep.

"How about Resale Value?" says I.

Bud Jr. looks at me as if he's about to bust a gut with pride. "You're starting to get the hang of this, Pop." Pop is what he calls me when his defenses are down.

"I'm just playing along," says I. "What about how much work you can do in a day?"

"Very important. We'll call that Output." I ask him why not just call it how much work you can do in a day, and he says that won't fit into the little box. Maybe all them seventy-dollar words come into the world on account of the easy way to say it don't fit into little boxes on green TVs.

Anyway, we type in Dependability, and Loyalty, and Sentimental Value, and Attitude. Then I think of something else.

"Put Aggravation in there," I say. "Flossie has been aggravating me some-

■ COMPUTERS IN SOCIETY

thing fierce lately." Bud Jr. gives me a look, but he pecks it in.

So then he says it's time to give these things weights. "I haven't put Flossie on the scales in a long time," I say, "but she don't weigh as much as no tractor."

Bud Jr. gives me a dirty look and says he don't mean that kind of weight. What I'm supposed to do is pick a number from 1 to 100 to tell the machine how important each category is. One hundred is real important, but 30 is not-so-very. I give 80 to Output, and 70 to Upkeep all the way down to 20 for Sentimental Value. You can't plow with no sentiment.

Next Bud Jr. says we have to pick a mode for each one. Pie à la is the only mode I ever heard about, but Bud Jr. says we got to figure out whether we want to compare numbers, or words, or pitchers. I don't have the foggiest, so I tell him to try a little of each flavor.

Then the next thing we have to do is fill in the blanks like on one of them contests nobody ever wins. First we have to do the ones with the numbers, but before you can do that, you have to decide what's most desirable and what's least desirable. You would think a thinking machine that's supposed to help you decide could decide for itself that when something costs you ten thousand smackers it's less desirable than if it costs you zip, but Bud Jr. says no, you got to tell it, which we do.

We work out all the numbers for Cost and Upkeep and Resale Value, and then it's time for Output and Dependability. These come with lines on them that go from Most Desirable to Least Desirable, and you move an X from one end to the other or somewhere in the middle.

The thinking machine can't figure out that the work a tractor can do is closer to Most Desirable and the way Flossie is going she's nearly off the other end, so I let it know. And as for Loyalty, a tractor isn't going to run off on you and disappear for a while because it's taken a shine to some other tractor, so the Xs on that one come out pretty much the same way.

Then we get to the Verbal ones. You get to pick from a list of words like Maximum, Extreme, High, Moderate, Low, Minimum, and Absent. I figure any machine would probably give me Moderate Aggravation, but the way Flossie's been

carrying on lately, Extreme is the only score I could give her on that one. For Attitude I could pick from Fantastic, Good, Fair, Bad, and Terrible. I figure a tractor will have an OK attitude, but by now I bet you can guess how Flossie come out. When it come to Sentimental Value I give her Maximum at first, but the more I think about it she ends up down at Moderate. That still beats out the tractor.

According to Bud Jr., MBA, as it says on that business card of his with the writing you can feel, it's time for RULES. Me, I don't know any that apply here except maybe the golden one of do unto other people before they do unto you. But Mr. Educated says the only kinds of rules you can apply is simple ones like if Aggravation is too high, the machine can knock somebody out of the running. I say Flossie would lose right away if we made up a rule like that, which doesn't seem fair, and the long and short of it is we skip the rules part.

Then the next thing Bud Jr. says is "Watch this!" He moves the little light over the word EVALUATE, and the next thing I know, up there on the screen is two long bars, one for Flossie and one for the Tractor. The one for Flossie is a trifle longer. It says out of a possible 360 points, Flossie got 183 and Tractor got 169.

Cut off my nose and fry me for a catfish! I suddenly get this oystery feeling in the back of my gullet. "Well, if your machine don't lie," I say kind of glumlike, "I guess I'm stuck with Flossie."

"Not so fast," says Bud Jr., who looks kind of upset but not half as much as me. "This is where the computer really comes in handy." He presses a key and up come some more little bars, one for each thing we rated Flossie on. "See, Pop, now the computer will let you play what-if."

"What if I just kick you and it out of here right now?"

Bud Jr. gives me one of those "I'm trying to be patient" looks of his. "Dad, this is scientific. Now, look here. Maybe you want to change the weights of some of these factors."

He uses his finger to point to a couple of the little bars, and then I get the gag and go along. "Poor Flossie did pretty bad on Output. You know, I guess that's more important than your old man thought. And that Sentimental Value mush? Well, we

shouldn't let sentiment stand in the way of making these here scientific decisions, should we?" We make a couple more changes and Bud Jr. types 'em in and presses more buttons, and guess what?

It's Tractor over Flossie 177 to 165. "You know, that recount was slicker than the way Mayor Delp stole the election."

But I got to admit the machine does its job. The minute I saw Flossie win, I felt terrible. I would of done anything to change the score, and that's what I did. Still, it's like I said at the beginning: You can do the same if you just flip a coin. When you start rooting for heads, you know what you really want to do.

Well, to make this story short, Bud Jr. went home and printed everything up on some gizmo of his, and that very day I booted Flossie out the gate and found myself a nice tractor with good rubber on the tires and a seat that rattles your kidneys like it ought to and good old country air instead of the factory kind. I told Bud Jr. thanks for helping me cheat, but he said I actually done right anyway on account of the computer got fooled in the Aggravation department and gave more points for Extreme than for Low, and when he fixed it Flossie came out on the bottom even before we played "what-if."

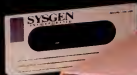
Well, the computer was right. I been a happier man than anytime in my 49 years of married life since I divorced the old girl and bought the tractor and I don't have to buy no golden anniversary present neither.

You'd think Bud Jr. would be tickled pink, which he was at first. But now he says I should of kept Flossie after all, because the computer didn't add up no alimony payments and lawyer bills, which would of tipped the scales the other way.

Personally, I think the old girl's what's got him ticked. She moved in with him now that he needs her rent to make the payments on that air-conditioned tractor, and for the life of me I don't know why, but she's running around now with a smile on her face and about 20 years off her age and some lunk in a funeral suit from up to town, which Bud Jr. thinks is no way for the mother of a MBA to behave.

I tell you, the old girl and Bud Jr. would never admit it, but me, I wonder if Flossie just might of "what-ified" that computing machine in the first place. ■

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No class of PC software is bigger or more widely used than word processors. A word processor is every beginner's first software purchase and every power user's daily computer tool. Thus, more word processors are in use on PCs, by a variety of users, than any other type of software product.

The number and variety of products designed to fulfill this incredibly wide range of needs has made word processing the most competitive market in PC software. As a result, no one product dominates that market the way Lotus Development Corp.'s 1-2-3 holds sway in spreadsheets or Ashton-Tate's dBASE product line dominates database management.

THE BUSINESS OF WORDS

- CORPORATE
- PROFESSIONAL
- PERSONAL

PC MAGAZINE LABS TAKES A FRESH
APPROACH TO TESTING WORD PROCESSORS—
THE LARGEST, MOST COMPLEX, AND MOST
COMPETITIVE PC SOFTWARE MARKET.



PROFESSIONAL WORD PROCESSORS

PRODUCT	PRICE	COMMAND STRATEGY		TEXT DISPLAY		TEXT WINDOWS		DISK REQUIREMENTS													
		STATIC MENUS	DYNAMIC MENUS	KEYBOARD COMMANDS	WORD COMMANDS	UNFORMATTED	PARTIALLY FORMATTED	FULLY FORMATTED	HOW MANY WINDOWS	HOW MANY DOCUMENTS	FULL SCREEN	PARTIAL SCREEN	FLOPPY DISK	HARD DISK	COPY PROTECTION	SPELLING CHECKER	ON-LINE HELP	ERROR HANDLING	REFERENCES	DOCUMENTATION	TUTORIAL MATERIAL
Executive Footnote	\$99.95	S																			
Executive Secretary V	\$69.95			D		O	O														
Executive Writer	\$69.95	S		K																	
Final Draft	\$395.00	S	D	K																	
The FinalWord	\$395.00		D	K	W	O			6	6											
Microsoft Word	\$395.00	S		K					8	8											
My Word!	\$60.00		D	K																	
NewWord	\$249.00		D	K																	
NewWord 3	\$349.00	S	D	K																	
PC-Write	\$75.00		D	K					2	2											
Perfect Writer	\$199.00	S	D		W				2	2											
Personal WordPerfect	\$195.00	S		K		O															
PractiWord	\$99.00	S	D	K																	
The Prof. Writer's Pkg.	\$490.00			K	W				4	12											
Smart Word Processor	\$195.00		D	K	W				25	25											
Spellbinder	\$495.00	S		K	W	O	O														
SuperWriter	\$295.00		D	K																	
Volkswriter Deluxe	\$295.00	S	D	K																	
WordPerfect	\$495.00	S	D	K					2	2											
WordStar Professional	\$495.00	S	D	K																	
XyWrite II Plus	\$295.00			K	W	O	O		2	2											
<div><div> - OPTIONAL</div><div> - KEY DISK REQUIRED</div><div> - HARD DISK RECOMMENDED</div><div> - ADEQUATE</div><div> - GOOD</div><div> - EXCELLENT</div></div>																					

- OPTIONAL
 - KEY DISK REQUIRED
 - HARD DISK RECOMMENDED
 - ADEQUATE
 - GOOD
 - EXCELLENT

in those categories will appear in special reports in later issues of *PC Magazine*. Those categories include Scientific word processors, word processors that come inside Integrated Packages, those that require Special Operating System exten-

sions, and Outline Processors, which have come into prominence as a special type of word processing product.

The testing procedures for most categories are the same (however, some changes were made for a few of the specialty prod-

ucts), but you'll find that the viewpoints of our reviewers change from one category to the next.

POWER: THE ACID TEST The testing procedures used for this project are the sec-

1. Follow instructions on the other side

Back

005518back-001B



Inverted Back

1. Follow instructions on the other side



1. Open the foldout page
2. Insert this sheet with
1. Front side touching the free page
2. Arrow pointing to the fold
3. Slice the folded edge
4. Close the page and slip-sheet

Foldout slip-sheet



Inverted Foldout slip-sheet

1. Open the foldout page
2. Insert this sheet with
 1. Front side touching the free page
 2. Arrow pointing to the fold
3. Slice the folded edge
4. Close the page and slip-sheet



Folded edge of the page

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats
 JL = Left Justified
 JR = Right Justified
 JC = Center Justified
 JN = Fully Justified/Normal Spaces
 JM = Fully Justified/Microspaces

Margins
 LM = Left Lower Limit
 RM = Right Upper Limit
 AI = Automatic Indent
 AO = Automatic Outdent

Line Spacing
 LS = Range in Lines per Inch
 LF = Fractional Lines per Inch
 SB = Specify Spacing Before Para
 SA = Specify Spacing After Para
 KP = Keep Para with Previous Para
 KN = Keep Para with Next Paragraph
 WC = Widow Control
 OC = Orphan Control

Character Formats
 VP = Variable Monospace Pitches
 PS = Proportional Spacing
 AP = Pitch Change Adjusts Margins
 PW = Print Wheel or Font Spec
 BO = Bold
 IT = Italic
 UL = Underlined
 SP = Superscript
 SB = Subscript
 ST = Strike-through
 SC = Specify Strike-through Char
 CB = Combination Formats
 ASC = Standard ASCII Character Set
 IBM = Full IBM Character Set
 CT = Char Translate Table for Print

Page Formats
 LIT = Align First Text Line from Top
 LTT = Align Last Text Line from Top
 LLB = Align Last Text Line from Bottom
 GL = Global Left Margin
 GR = Global Right Margin
 LP = Maximum Lines per Page
 HT = Align Header from Top
 HL = Align Header from Left
 HR = Align Header from Right
 FT = Align Footer from Top
 FB = Align Footer from Bottom
 FL = Align Footer from Left
 FR = Align Footer from Right
 PL = Maximum Paper Length
 PW = Maximum Paper Width
 MP = Multiple Pg Specs per Doc

Tabulation Formats
 TL = Left Tabs
 TR = Right Tabs
 TD = Center Tabs
 DC = Decimal Tabs
 TC = Specify Decimal Tab Character
 FC = Specify Tab Fill Character

Header/Footer
 SL = Single Line
 ML = Multiple Line
 UM = Margins Unique from Text
 OF = Can Omit from First Page
 UP = Unique for Left/Right Page
 AN = Automatic Page Number
 BN = Restart or Overwrite Number
 PA = Arabic Page Number Format
 PR = Roman Page Number Format
 PO = Other Page Number Format
 THF = Tabs in Header/Footer

Multiple Columns
 TC = Text Columns
 NC = Numeric Columns
 CP = Max Number of Cols per Pg
 UC = Unmatched Column Widths
 GW = Specify Intercol Gutter Width

EDITING SCREEN DISPLAYS

Nonedit Display
 RO = Rule/Line Optional
 RC = Rule/Line Constant

CC = Cursor Character Column
 LN = Cursor Line Number
 PN = Cursor Page Number
 DK = Document File Name
 DF = Document File's Directory
 DR = DOS Time
 TI = DOS Date

Text Display
 SL = Max Text Lines (Vertical)
 SC = Max Text Characters (Horizontal)
 WA = Automatic Word Wrap
 WD = Can Disable Word Wrap
 FJ = Full Justification On-screen
 ST = Snake Text Cols On-screen

TEXT ENTRY AND EDITING

FC = Typing Format Continues Until Changed
 IT = Toggle Insert/Overstrike
 ID = Insert Is Default
 IO = Overstrike Is Default
 DE = Either Is Default
 DM = Drop-down Insert, Auto Ref
 ED = Drop-down Edit, Manual Ref
 CA = Constant Auto Insert/Insert
 BA = Background Auto Insert Ref
 IM = Constant Insert with Manual Ref

Deletion Formats
 CD = Character
 WA = Entire Word
 WE = Cursor to End of Word
 WB = Beginning of Word to Cursor
 LA = Entire Line
 LE = Cursor to End of Line
 LB = Beginning of Line to Cursor
 SA = Entire Sentence
 SE = Cursor to End of Sentence
 SB = Beginning of Sent to Cursor
 PE = Entire Paragraph
 PB = Beginning of Para to Cursor
 PGA = Entire Page
 PGE = Cursor to End of Page
 PGB = Beginning of Page to Cursor
 DA = Entire Document
 DE = Cursor to End of Document
 DB = Beginning of Document to Cursor

Character Features
 AC = Alter Case
 HH = Hard Hyphens
 SH = Soft Hyphens
 HB = Hard Spaces

Cursor Movement
 CM = Cursor Keys with Cursor Mode
 CK = Cursor Keys with Alt/Ctrl/Shift
 SD = Special Keys (e.g., Ctrl + Alpha)
 MS = Mouse
 NC = Move to Next/Previous Char
 NL = Move to Next/Previous Line
 NM = Move to Next/Previous Word
 NS = Move to Next/Previous Sentence
 NP = Move to Next/Previous Paragraph
 NSC = Move to Next/Previous Screen
 NPG = Move to Next/Previous Page
 BL = Move to Begin/End Line
 BS = Move to Begin/End Sentence
 SP = Move to Begin/End Paragraph
 BSC = Move to Begin/End Screen
 BPG = Move to Begin/End Page
 BD = Move to Begin/End Document
 SU = Scroll Screen Up
 SD = Scroll Screen Down
 SR = Scroll Screen Right
 SL = Scroll Screen Left
 JC = Jump Cursor to Character
 JL = Jump Cursor to Line
 JP = Jump Cursor to Page
 JM = Jump Cursor to Place Marker
 CK = Cursor (Scroll) Lock

Block Editing Tools

HL = Block Highlighted
 BL = Marked by Begin/End Char
 UM = Block Unmarked

AB = Arbitrary (Begin/End)
 CH = Character
 WD = Word
 LN = Line
 SE = Sentence
 PH = Paragraph
 CO = Vertical Block or Column
 PG = Page
 CE = Cursor to End of Document
 BC = Begin of Document to Cursor
 DO = Entire Document
 MV = Move
 CP = Copy
 SW = Swap
 DE = Delete
 FC = Format Block Characters
 PF = Format Block Paragraph
 FP = Format Block Pages
 FT = Format Block Tabs
 AR = Auto Reform as Block Inserted
 MR = Manual Reform as Block Inserted
 HA = Copy/Delete to Hold Area
 DF = Copy/Delete to Disk File
 TM = Copy/Delete to Text Macros
 AW = Copy/Move to All Windows
 FH = Copy/Move to Header/Footer
 FN = Copy/Move to Footnote

Search and Replace

FO = Forward
 BK = Backward
 CS = Case Sensitive
 CI = Case Insensitive
 PC = Preserve Case on Replace
 WW = Whole Word
 AS = Any String
 WS = Search for Wildcards
 WR = Replace Wildcards
 FS = Search for Format Codes
 FR = Replace Format Codes
 VV = Replace with Verily

Undo/Redo

UD = Undo Last Delete
 UA = Undo Last "Edit Action"
 UR = Rotating (Undo/Pre Undo)
 RP = Refresh Page or Other Unit
 RD = Must Refresh Entire Document
 NA = Undo Not Available

PRINTER SUPPORT

NP = Number of Printers Supported
 UP = Can Modify/Create Printer Ctrl
 PT = Can Insert Printer Codes
 SF = Sheet Feeder Bins Supported
 ES = Edit Same Doc During Print
 EO = Edit Other Doc During Print
 QU = Queue Documents for Printing
 CH = Chain Documents for Printing
 PW = Pause to Change Print Wheel
 PS = Pause to Insert Single Sheets
 OF = Offset for Paper or Plich Diff
 AE = Auto Envelope Format/Print

FILE HANDLING

Document File Strategy

FD = Full Document in Memory
 LM = Edit Doc Larger than Memory
 PG = Page or Other Unit in Memory
 DF = One Document per File
 FO = File Folder/Drawer Metaphor
 CI = Comments in Document Info
 CS = Comments Usable for Searching for Document
 CT = Comments in Text
 ASC = Document in ASCII Format
 OTH = Document in Other Format
 DS = Max Document Size

Document Saving

NS = No Backup Created at Start
 AB = Auto Backup Created at Start
 DB = Disable Automatic Backup
 MS = Manually Save During Edit
 AT = Specify Timing for Auto Save
 AD = Disable Automatic Save
 SW = "Time to Save" Warning
 EN = Exit Document Without Saving
 ER = Exit Causes Reminder to Save

EA = Document Auto Saved on Exit
 DL = Document Lost on Reboot
 PL = Current Page Edits Lost
 IN = Document Inactive

DOS Facilities

DR = Doc or Other Directory Avail
 MD = File Directory Is Edit Menu
 CDK = Change Default Disk
 ADK = Access File from Another Disk
 SDK = Files Always on Same Disk
 CDR = Change Default Directory
 ADR = Access File from Another Dir
 SDR = Files Always in Same Dir

File Import and Export

IM = Can Merge Document Files
 IAL = ASCII Import Reqs CR per Paragraph
 NIA = Can't Import ASCII File
 IBM = Import IBM RPT/DCA
 IWM = Import Word
 IWS = Import WordStar
 IOW = Import Other
 EAC = ASCII Export Has CR per Line
 EAP = ASCII Export Has CR per Para
 NEA = Can't Export ASCII File
 EIBM = Export IBM RPT/DCA
 EWN = Export Word
 EWS = Export WordStar
 EOTH = Export Other

SPECIAL FEATURES

Spelling Checker

WD = No. of Words in Dictionary
 UG = General User Dictionary
 UD = Document User Dictionary
 US = Special-Purpose User Dictionary
 SW = Checks Single Word
 DW = Checks Defined Block
 DE = Checks Entire Document
 MD = Checks Multiple Documents
 IC = Misspellings Shown in Context
 AL = Misspellings Shown Alphabetically
 BG = Speller Presents Best Guesses
 MR = Manual Review of Misspellings
 IM = Ignore Misspellings
 AD = Add Word to Dictionary
 MM = Mark Misspellings in Text
 QK = Quit and Keep Corrections
 QL = Quit and Lose Corrections

Other

KM = Keyboard Macro
 CK = Customizable Keyboard
 CS = Customizable Color Screen
 SF = Style Sheets or Named Formats
 MM = Mail Merge
 MD = Mail Merge Using Database
 FF = Footnotes on Same Page
 FS = Footnotes Spread to End of Document
 FF = Custom Footnote Formats
 AI = Automatic Indent Generation
 AT = Automatic T-of-C Generation
 GR = Graphics in Text
 FL = Foreign Language Support
 SC = Scientific Notation Support
 OG = Outline Generator
 DV = Date Variable
 TV = Time Variable
 TM = Abbrev Glossary (Text Macros)
 HD = Dictionary-based Hyphenation
 HA = Algorithm-based Hyphenation
 HS = Scientific Hyphenation
 TH = Thesaurus
 MU = Alternative Units of Measure
 MS = Simple Math (Calculator)
 MC = Complex Math
 MT = Math Works in Tables Only
 MA = Numbers and Results from/to Anywhere
 TC = Telecommunications



CORPORATE WORD PROCESSORS

LABS

PRODUCT	PRICE	COMMAND STRATEGY				TEXT DISPLAY	TEXT WINDOWS	DISK REQUIREMENTS												
		STATIC MENUS	DYNAMIC MENUS	KEYBOARD COMMANDS	WORD COMMANDS	UNFORMATTED	PARTIALLY FORMATTED	FULLY FORMATTED	HOW MANY WINDOWS	HOW MANY DOCUMENTS	FULL SCREEN	PARTIAL SCREEN	FLOPPY DISK	HARD DISK	COPY PROTECTION	SPELLING CHECKER	ON-LINE HELP	ERROR HANDLING	REFERENCE DOCUMENTATION	TUTORIAL MATERIAL
Allegory	\$170.00			K					2	2										
Benchmark Word Proc.	\$395.00	S	D	K																
DisplayWrite 2	\$385.00	S		K																
DisplayWrite 3	\$450.00	S		K										R						
Leading Edge Word Proc.	\$250.00	S	D	K					2	2										
Mass-Typc	\$995.00	S		K					2	2				R						
MutiMate Advantage	\$595.00	S		K																
MutiMate 3.3 Series	\$495.00	S		K																
OfficeWriter	\$445.00		D	K																
PeachText 5000	\$295.00	S		K																
Professional QWERTY	\$149.00			K																
SAMNA Word III	\$495.00		D	K					2	2				R						
WordMARC	\$495.00	S		K										R						
Word Result	\$295.00		D						2	1				R						
WordStar 2000 Plus	\$595.00		D	K					3	3				R						

= OPTIONAL
 = KEY DISK REQUIRED
 = HARD DISK RECOMMENDED
 = ADEQUATE
 = GOOD
 = EXCELLENT



O - OPTIONAL



Om - KEY DISK REQUIRED



R - HARD DISK RECOMMENDED



| | - ADEQUATE



| | - GOOD



| | - EXCELLENT

So, the time has come for PC Magazine Labs to test word processors comprehensively and to let you know what products are out there and how well they process words.

PC Magazine Labs tested a large number (76 in all) of word processing products for this special issue of *PC Magazine*. Whenever we test that many products, we add something new to the review process that makes the reviews better and more interesting. For this special issue we are making two significant departures from traditional word processing product reviews: product categorization and testing procedures that are more oriented to the business user.

A ROSE BY ANY OTHER NAME

Many word processing reviews ignore, or sometimes even condemn, differences among special features in products that are designed to meet the needs of specific market segments. To avoid that problem, we placed each word processor into a category defined by its target market.

We identified seven word processing categories in total. The Corporate, Professional, and Personal categories include traditional word processors, which are used exclusively as general-purpose document editors, formatters, and printers. These three are the largest categories, and reviews of the 57 word processors tested in these categories appear in this issue. *Cor-*

porate word processors are designed to meet the needs of the clerically staffed word processing departments typically found in large corporations. *Professional* word processors are designed for professional writers, business analysts, executive secretaries, researchers, and academics who do their own document creation and editing. *Personal* word processors are meant for use by executives and other occasional PC users, such as home users.

The other four categories comprise specialty word processors, which are designed for unique applications or require special operating environments. To bring you the most information possible about these products, reviews of the 20 products



PERSONAL WORD PROCESSORS

PRODUCT	PRICE	COMMAND STRATEGY		TEXT DISPLAY		TEXT WINDOWS		DISK REQUIREMENTS												
		STATIC MENUS	DYNAMIC MENUS	KEYBOARD COMMANDS	WORD COMMANDS	UNFORMATTED	PARTIALLY FORMATTED	FULLY FORMATTED	HOW MANY WINDOWS	HOW MANY DOCUMENTS	FULL SCREEN	PARTIAL SCREEN	FLOPPY DISK	HARD DISK	COPY PROTECTION	SPELLING CHECKER	ON-LINE HELP	ERROR HANDLING	REFERENCE DOCUMENTATION	TUTORIAL MATERIAL
Bank Street Writer	\$79.95	S		K																
Cut and Paste	\$34.95	S																		
DisplayWrite 1	\$99.00	S		K																
Easy	\$150.00		D																	
Einsteinwriter	\$169.95	S	D	K	R				2	1										
FriendlyWriter	\$69.95	S	D	K																
Homeward	\$69.95	S		K																
Just Write	\$145.00	S	D	K																
MindReader	\$169.00		D						2	1										
MyWrite	\$49.95		D																	
Paperback Writer	\$39.95	S		K	R															
PC-Type	\$59.95			K																
Personal QWERTY	\$99.00			K																
PFS:WRITE	\$140.00	S	D	K																
Profont	\$69.95	S	D	K					4	4										
TEXTRA	\$24.95	S		K																
WordPerfect jr	\$69.00	S	D	K																
Wordvision	\$50.00		D						2	1										
Write 'n Spell	\$149.95		D	K																
Writing Assistant	\$149.00	S	D	K																
Zen Word	\$79.95		D																	

O = OPTIONAL

D = KEY DISK REQUIRED

R = HARD DISK RECOMMENDED

| | = ADEQUATE

| | = GOOD

| | = EXCELLENT

and major enhancement to the word processing reviews. Testing was difficult because no other type of software is more complex—there are more ways to do more things using a word processor than with any other software.

Ordinary tests don't tell you very much about how well a word processing product performs. For example, the classical tests of software, such as timing prescribed tasks, don't work well for word processors because there are typically too many op-

tions, variables, and, for that matter, variable options within each product that can affect how much time a task can take. These variations also hinder performance measures that count the number of key-strokes required for a task or even those

that count the number of extra formatting characters stored in a document file. This type of testing will give you some marginally useful information about bits and pieces of the product but won't tell you much about the product's ability to process words—there's too much more that word processors have to do.

To test each product's overall word processing power and give you product reviews that contain the kind of information you need, we asked our reviewers to create, format, modify, and print documents carefully designed to test each product as a whole. We tried to get at the program's core word processing power rather than picking at the small performance points around the edges.

How fast any one part of the word processing task goes is not as important to you as how much power is available to carry out the whole job. Knowing that will give you a good idea of how long the entire task should take you once you have learned, and are comfortable using, the product. A word processor's command style and its overall approach to word processing will also help you decide if you want to use the product or not—our procedures uncover that, too.

Reviewers were given two ways to explore the power of each word processor. First, PC Magazine Labs developed a questionnaire that listed over 400 word processing power features and options. Each product was thoroughly examined, and every feature or option it contained was checked off on the list. The results are presented in the chart in the preceding pages and in the Expanded Fact File accompanying each review.

Second, a testing script was prepared that required each reviewer to perform a wide variety of editing tasks on a typical business document, which was imported into the product's editor. The test document was a fictional sales proposal for the equally fictional Arbor Technology Tree Surgery and Service Company. It required the word processors to produce a variety of



John Dickinson, Barbara Krasnoff, and shelves of word processing power.

paragraph formats (including multiple line spacing, centering, and alternate margins), character variations (including compressed printing, underscores, and other print enhancements), numeric tables (which required mathematics to construct), and headers and footers (which required tabulation). In addition, reviewers were asked to write a cover letter for the document (in a standard block format) and

■ **How fast any one part of the word processing task goes is not as important to you as how much power is available to carry out the whole job.**

prepare to send the letter to a list of sales prospects, using a mail-merge facility if it was available.

The formal script asked reviewers to find the best way to perform a series of word processing twists and turns that ranged from simple text editing to backward- and case-sensitive search-and-replace operations (with wildcards where available) and use a spelling checker if one came with the product. The testing procedure also encouraged reviewers to explore

any features not covered by the script that they came upon while taking the tutorial provided or reading the reference documentation (both were required tasks). As a final assignment, each reviewer was directed to write the actual product review using the tested word processor.

Filling out the questionnaire gave each reviewer a chance to thoroughly analyze the capabilities of each product. The testing script gave each reviewer the opportunity to try out those ca-

pabilities and take each product as close to its limits as possible in a typical business word processing scenario. And there is no truer test of a product for a professional reviewer than doing a real-life writing assignment with its accompanying length, format, and deadline requirements.

Our reviewers tell you how it all went in their articles—how easy or hard the word processor was to use, how fast or slowly the job got done using each product. You'll also get the reviewer's well-researched and thoughtful opinion about whether or not you should put your hard-earned money into that product.

THE MOST INFORMATION This special issue of *PC Magazine* contains the largest number of word processing product reviews ever presented in one place. To help you find your way through this much information, products in each category are arranged alphabetically by product name (see the chart for product coverage in each category). Price, it turns out, is not a good guide to word processors these days—as you read the reviews, you'll find out that good products are priced from under \$100 to nearly \$1,000.

The combination of appropriate word processing product categorization, exhaustive testing procedures, and thorough reviews should give you enough information to make your next word processing product decision the best, and best informed, that you ever made—even if it's just to keep the word processor you already use. ■

PC MAGAZINE EDITOR'S CHOICE REVIEWERS

Reviewing this much word processing power took a lot of people power. Sixteen highly qualified reviewers handled the reviewing and writing chores for this special edition. Every reviewer has at least a mild bias toward his or her word processor of choice, so we thought you should have that information about our reviewers as well as know who they are and what they do.

Cheryl Goldberg is an assistant editor at *PC Magazine*, where she has worked on the printer issues and other feature projects, including an upcoming special issue on financial software products designed for the PC. She is a *XyWrite II Plus* user.

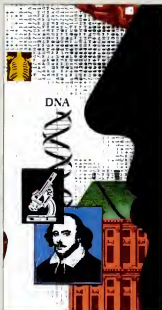
Dawn Gordon is a free-lance writer in the consumer electronics and computer industries and "electronic editor" of CompuServe's Consumer Electronic Forum. Her word processor of choice is *WordPerfect*.

Barbara Krasnoff helped manage the word processing project and also reviewed products for it. She is an associate editor at *PC Magazine* and uses *XyWrite II Plus* there as well as at home on her Compaq.

Jane Mintzer is an assistant editor at *PC Magazine*. Mintzer regularly edits the Book Review column using *XyWrite II Plus*.

Dara Pearlman is a free-lance writer based in California who contributes frequently to *PC Magazine* on numerous topics. She also writes for local newspapers and other computer magazines using *Volkswriter Deluxe* for her daily word-smithing chores.

Charles Petzold is best known as the *PC Tutor* but is also one of *PC Magazine*'s most prolific contributing editors. He frequently writes the Programming/Utilities column, contributes to the Power User column, and has reviewed a wide variety of hardware and software products. Petzold is a long-term *WordStar* user who has patched his copy beyond recognition.



Alfred Poor is president of Soft Industries, a Connecticut software and hardware consulting firm, and a frequent contributor to *PC Magazine* on a variety of PC topics. Although familiar with many products, he uses *XyWrite II Plus* in his daily work.

Robin Raskin is a free-lance technical writer for corporate clients as well as for *PC Magazine*, where she writes frequently about a variety of PC products. A contributor to the printer and business graphics software projects, Raskin recently abandoned *WordStar* in favor of *Microsoft Word*.

Dick Ridington is a frequent contributor to *PC Magazine* and a key figure with Soft Industries in Southington, Connecticut. An expert in database management systems, Ridington takes advantage of *Framework*'s multitude of talents in his daily work.

Paul M. Stafford is an editorial assistant at *PC Magazine* who works on feature articles and reviews. Stafford is a daily user of *XyWrite II Plus*.

Stephanie Stallings is an associate editor at *PC Magazine*, where she writes and edits feature articles about a variety of hardware and software products. Stallings uses *XyWrite II Plus* for her work.

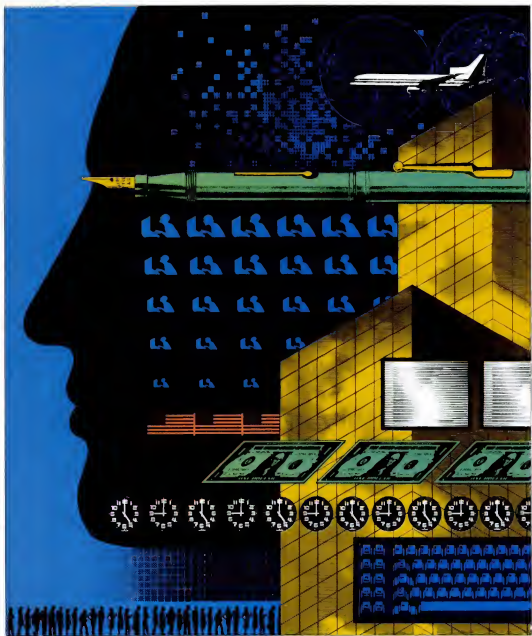
Craig L. Stark is *PC Magazine*'s technical editor. He edits the Power User column and generally keeps our technical contributors in touch with the English language. Stark is easily *XyWrite II Plus*'s biggest fan at *PC Magazine*.

Craig Stinson is a contributing editor of *PC Magazine* and managing editor of the *Seybold Report on Professional Computers*, where he reviews products and manages publication of the newsletter. Stinson uses *Framework II* for daily word processing, data management, and other chores on his XT's at home and at work, and if you want to know more about how, look for his book on *Framework*, which will soon be published by Brady and Co.

M. David Stone is a frequent contributor to *PC Magazine*, where he specializes in telecommunications products. Stone—no newcomer to word processing—wrote the Prentice-Hall best-seller *Getting the Most of WordStar and Mail-Merge*. Needless to say, his favorite word processor is *WordStar*.

Jared Taylor is a contributing editor of *PC Magazine* and regularly edits the Spreadsheet Clinic column. Taylor is a well-known authority on the Japanese economy and author of *Shadows of the Rising Sun: A Critical View of the Japanese Miracle*. Taylor writes everything using *The Final Word*.

Phil Wiswell is a microcomputer consultant and free-lance computer writer who contributes software, printer, and other hardware reviews to *PC Magazine*. Wiswell prefers *XyWrite II Plus*'s speed and responsiveness for his word processing needs. ■





In the beginning there were typewriters operated by secretaries and clerks, who pressed the keys that brought words and paper together. Creating finished, well-formatted business documents was something of an art, requiring speedy, impeccable typing skills. One mistake could end the life of a sheet of corporate bond paper; only the fastest typists could make up for the lost time.

Then the computer age reached the offices of corporate America with a machine called "the word processor." This new breed used video technology to create, format, and edit text in transient electronic form before printing it using typewriterlike printers. The new technology allowed for more-complex formats and could produce an almost unlimited number of drafts before the final product was printed on paper. The productivity gains were almost incalculable.

The earliest standalone word processors ran software designed to make the transition from typewriter to computer as painless as possible. Word processing programmers worked endlessly to create software metaphors based on typing tech-

THE BUSINESS OF WORDS

CORPORATE

THE FIRST WORD PROCESSORS REPLACED
TYPEWRITERS AND THE STENO POOL—
TODAY'S CORPORATE WORD PROCESSORS
MIMIC THOSE ORIGINAL PRODUCTS.



niques and terminology. Their programs organized typing into pages and used character columns and 1/4-inch lines to measure nearly everything, and many of them even simulated typewriter key clicks and warning bells with a built-in speaker.

Early word processor users (they were usually called *word processing operators*) did nearly everything by choosing an item from a menu or by pressing one of the numerous specially marked keys on the keyboard (outside the normal typewriter keyboard area, of course).

"Everything" included quite a bit. To meet the demands of such diverse end users as corporate officers, board members, business analysts, lawyers, and union shop stewards, these word processors had to do anything that a skilled typist could on an IBM Executive Selectric and more. They had to handle anything from simple block-format letters and data-entry forms to on-page footnotes and proportionally spaced printing.

The text-formatting gains were even clearer than the productivity gains, and the transition wasn't difficult thanks to the exertions of the software designers. The typing and steno pools were soon replaced by word processing departments—which, as often as not, grew into office automation departments.

Next came the IBM PC. It was less expensive than most dedicated word processors (even the more grown-up ones that made efficient use of mainframe computers), could outperform some of them, and, perhaps best of all, could be used for other applications as well.

At first they posed a problem for corporate word processing departments: No word processing software was available that resembled the dedicated word processors that hordes of users already knew. Corporations didn't want to go through another transition, especially since the first word processing programs for the PC were, at best, difficult to learn and, at worst, impossible to use.

Then an insurance company in Hartford, Connecticut, asked a local consulting firm to produce a word processor for the PC that would mimic the dedicated machines it used. The consultants struck an agreement with the insurance firm that allowed them to market the product to all

corners, and the first edition of *MultiMate* was born.

Other companies, including IBM, soon followed. Most followed *MultiMate*'s example by mimicking the Wang Laboratories Inc. word processing system, but others aped the Lanier system or struck out on their own menu-driven path. IBM, of course, mimicked (copied, in fact) its own *Displaywriter* software when it produced its *DisplayWrite* product line for the PC.

Fifteen corporate word processors for the PC are covered in this section. They



EDITOR'S CHOICE

MultiMate Advantage—MultiMate International Corp. led off the "Wang-on-PC" race 3 years ago, and it's still the leader of the pack. The company's newest and best product is MultiMate Advantage 3.50. Its thorough and intelligent interpretation of the Wang word processing life-style, combined with excellent database and mail-merge capabilities and even a custom keyboard and communications board, make it a clear choice for the corporate word processing department using PCs.

Leading Edge Word Processor—If you're more concerned about price than about strict adherence to the Wang operating style, look seriously at Leading Edge Word Processor 1.3. The product is easy for Wang-trained users to learn, and it offers significant performance advantages over the competition. Leading Edge has included features and operating modes that make the product palatable to professional users—which is a definite edge in many corporate offices.

target the same corporate word processing department marketplace for which the earliest word processing products were designed. If you need to buy software for one of those departments, look here for the best of the breed.—John Dickinson

ALLEGORY 1.2

Allegory 1.2 is a new Wang-like word processor from a start-up company called April Software. How, you may ask, can such a critter hope to compete, given the marketing clout of *MultiMate* (the original Wang emulator) and the overall glut of word processing software?

Primarily on the basis of price. *Allegory* offers much of the editing ability of *MultiMate*, for only \$170—less than half the list price of *MultiMate* or *MultiMate Advantage 3.50*. It also offers a few original twists and wrinkles that make it easier to use and snappier on-screen.

Allegory has preserved much of the look and feel of the Wang environment. It's page-oriented, which means that you break pages explicitly as you write, and if you make changes that affect length, you issue a repaginate command before you print. Only one page is available in the screen buffer at any time, but you can minimize visual discontinuity by creating long "logical" pages as you work and breaking them into standard-size physical pages at print time.

Like the Wang, *Allegory* avoids menus within its editor, opting instead for a separate key for each command, and it employs a separate Execute key (not the Return key) as a command terminator. (*Allegory*, incidentally, uses the PC's gray Plus key for Execute and the gray Minus key for Cancel. These choices seem sharper than *MultiMate*'s corresponding F10 and Esc, both because of the logical association of plus and minus with affirmation and denial and because F10 is left free to do what the other function keys do—initiate commands, not terminate them.)

Allegory's normal operating mode is overwrite, which means that new keystrokes replace existing ones in their path. To make insertions, you press Ins; the characters ahead of your cursor fall away to the next line, returning after you've typed your insertion and pressed Execute. For deletions, you press Del, highlight your unwanted text, and press Execute. *Allegory*, like the Wang and *MultiMate*, lets you extend the highlighting directly to the next occurrence of any specified character; so, for example, to delete the remainder of

a paragraph you press Del, then Return, and then Execute. This form of rapid highlighting is available in any task that requires block definition.

SUMMARY SCREENS Like the Wang, *Allegory* attaches a summary screen to each document you create. This screen gives you a place to record the document's author and word processing operator, and it also presents system-generated statistics concerning date and time of the most recent edit and printing, number of keystrokes and amount of time expended during the most recent edit, and total amount of time and keystrokes expended. The system will also create "index documents" from these summary screens, which means it can do such things as print a list of documents created by a given word processing operator.

Allegory also implements a Wang-like "document library" that lets you gather related documents into named structures. These structures are simply DOS subdirectories, but *Allegory* creates them for you from its main system menu and insists that you use them (every document must belong to some library).

Where *Allegory* deviates from the Wang model, it does so without violating the style and feel of the Wang. For example, the Wang (and *MultiMate*) distinguishes normal tabs from decimal tabs not by the tab stops themselves but by the key you press to get to them. *Allegory* gives you a choice in the matter: You can work in "the Wang way" by setting up a single category of tab stops on your format ruler and pressing Alt-Tab when you want to use a stop "decimally", or you may simply indicate on the format ruler that a tab stop is intended for decimal use.

As another example, *Allegory* implements a "Super-Execute" key in addition to Execute. Super-Execute, which tells the program to "Carry out the rest of this command sequence without prompting me further," is handy for such things as switching from semiautomatic to automatic repagination. Its presence does nothing to interfere with a Wang user's habits, but it does enhance *Allegory*'s functionality.

Allegory keeps your work in memory to the extent that it can, even though it shows only one page at a time. You're not

■ Where Allegory deviates from the Wang, it does so without violating the style and feel of the original.

interrupted by disk activity when you cross a page boundary, movement between pages is more or less instantaneous, and repagination is faster than in *MultiMate*. But

should you prefer the extra security afforded by a save-as-you-go style of page orientation, you may switch to the program's optional "auto save" mode.

Headers and footers are declared in separate "page frames"; that is, you issue a Goto Page H command to set up a header or a Goto Page F command to set up a footer. In this way, *Allegory* does more or less the same thing many other word processors do—it gives you a special area in which to enter your header or footer string. This approach has the virtue of not making you position your cursor at the bottom of a page before declaring your footer (as you must do in *MultiMate*), but it limits you to one even/odd pair of headers and one pair of footers per document.



EXPANDED FACT FILE

Allegory 1.2

April Software Inc.
4142 Scranton Circle
Carmichael, CA 95618
(916) 485-1506

List Price: \$170



Requires: 256K RAM, DOS 2.0 or later, one disk drive
CIRCLE 690 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JC, JN, JM
Margins: LM:1, RM:255
Line Spacing: LS:2-24, LF
Character Formats: VP, PW, BO, IT, UL, SP,
SB, ST, CB, IBM
Page Formats: LIT, LLT, GL, GR, LP:200,
HT, HL, FB, FL, PL:100, PW:51, MP
Tabulation Format: TL, TC
Header/Footer: SL, UM, OF, UP, AN, RN, PA,
THF

EDITING SCREEN DISPLAYS

NuTest Display: RC, CC, LN, PN, DF, DK,
DR

Text Display: SL:19, SC:78, WA

TEXT ENTRY AND EDITING

Typing/Editing: FC, OD, DA
Deletion Features: CD
Character Features: AC, HB
Cursor Movement: CK, SD, NC, NL, NW,
NSC, NPG, BL, BSC, BPG, BD, SU, SD,
SL, SR, JP, JM
Block Editing Tools: HL, AB, CH, WD, LN,
SE, PH, PG, CE, BC, DO, MV, CP, DE, AR,
HA, DF, TM, AW, HF
Search and Replace: FO, CS, CI, WW, AS,
WS, FS, FR, VY
Undo Utility: UD

PRINTER SUPPORT

NP:36, UP, PT, EO, QU, CH, PW, PS, OF

FILE HANDLING

Document File Strategy: FD, DF, CL, CT, OTH,

DS 300, KBYTE
Document Saving: AB, DB, MS, AT, AD, EN,
ER, EA, EL

DOS Facilities: DR, MU, CDK, ADK, CDR,
ADR

File Import and Export: IM, IAL, EAL, EIBM,
EWNG, EWS, EOTH

SPECIAL FEATURES

Other: KM, MM, DV, TV, TM



Allegory's Wang-like, page-oriented environment is illustrated by the "Page End" label at the bottom of the screen.

you begin inserting, the program opens a large gap in your text in front of the cursor. A secretary might enjoy this feature because it clearly marks the insert position in the text. While in insert mode you can add text or correct mistakes by using the Backspace (erase) key. You also have some control over page formats, and you can invoke text and command macros. When you're done inserting, you press a key that closes the gap on the screen and aligns your text. Now you are in edit mode.

While in edit mode you can scroll through your document, deleting or moving text around. And you can use a set of commands listed on a menu that appears when you press the Esc key.

HOT AND COLD KEYBOARDS In addition to these modes, *Benchmark Word Processor* offers you the choice between hot keyboard and cold keyboard modes. The program default is the hot keyboard mode, which gives you a shortcut between the edit and the insert mode. According to the manual, the hot keyboard mode lets you overtype your text while you are in edit mode. When you reach a blank space, the program will automatically switch into insert mode. Thus in theory you can overtype a single word at most, unless you expressly issue an Overtyping command. This is a handy feature, but it takes a while to learn. Unfortunately, the hot keyboard is not entirely consistent. It sometimes waits until the second blank space before it kicks into insert mode; so you can sometimes overtype more than you expected.

The cold keyboard option keeps the edit and insert modes more clearly separated. To enter the insert mode, you press the Ins key. To begin overtyping text, you issue the Overtyping command. While the cold keyboard mode is less confusing than the hot keyboard mode, it's not as convenient. The manual devotes only a page to the cold keyboard mode, and few users will want to bother with it.

Benchmark Word Processor has a single, consistent method for moving or deleting text. When you issue a Move, Delete, or Copy command, the program prompts you to move the cursor forward, highlighting a block of text. You signal that you're done by pressing F10. If you're moving or copying text, you then move

your cursor to any point in the document (or in any other *Benchmark* document) and retrieve the block. This method isn't particularly speedy, especially since you have to start over again if you moved your cursor too far when defining a block. It's slow when all you need to do is remove one or two characters, but it does have the advantage of consistency and clarity. You get a chance to review the highlighted text before you consign it to oblivion, but once you hit F10, there's no going back because the program doesn't have an "undo" key.

Perhaps the program's strongest point is its print formatting. At any point in your document, you can change margins, tabs, and other print parameters with little fuss. Its math function is also impressive, allow-

■ Benchmark Word Processor boasts a powerful column manipulation feature with which you can move or swap columns of text or numbers.

ing you to add a column of figures using just a few keystrokes, and it includes a full range of arithmetic functions. It also boasts a powerful column manipulation feature with which you can move or swap columns of text or numbers.

However, as I ran the program through its paces for this review, I compiled quite a lengthy list of useful, bread-and-butter features that it lacks. There's no cursor control command that takes you to the top of the screen or to the beginning or the end of the document. The closest thing is the Page Jump command that will take you to page 1 or a high page number like 99. You can condense this four-keystroke sequence to two keystrokes using the program's macro function. However, you need to rerecord the macro each time you run the program, since there is (alas) no way to store com-

mand macros on disk. Also annoying is the program's constant beeping, not just when you make a mistake but almost any time it needs a response from the keyboard.

NO UNINTERRUPTED EDITING More seriously, there is no way to save your document on disk without interrupting your editing session. Saving a document returns you to the main menu, and then you have to reread your document into memory to go on editing. This is a nuisance and makes it less likely that you will save your work at frequent intervals, a practice that could protect your work from accidental destruction. Saving your work often is doubly important because *Benchmark Word Processor* is far from bulletproof. In the course of my testing, it crashed twice, once when I turned the printer off while it was printing and once when I was moving a block of text. Also missing is any way to "print" to disk or to go on editing while the program is printing.

Furthermore, the reference manual is poorly organized and inadequately indexed. Even basic program functions like copying and deleting lack index entries. Happily, a comprehensive tutorial leads you through the program's functions. If you need a refresher after completing the tutorial, you'll be best off ignoring the manual. Instead, press the program's help key, which summons a menu-driven manual on-disk that explains each command and executes commands on request. Even then, I was stumped many times by not having adequate information. For instance, the explanation of the footnote function did not mention that the cursor has to be on the left side of the screen before the footnote command will work.

Finally, although the manufacturer recommends a hard disk for running this program, hard disk users will be inconvenienced by the lack of support for DOS subdirectories. *Benchmark Word Processor* requires that all documents reside in the same directory as the program.

In sum, *Benchmark Word Processor* has many fancy features but skimps on the basics. While some of its features make it suitable for office use, it's seriously flawed by its inadequate documentation and its discouragement of frequent saving to disk. —Dara Pearlman



DISPLAYWRITE 2 1.10

DisplayWrite 2 1.10 is a corporate word processor that follows in the footsteps of its dedicated workstation predecessor, the IBM Displaywriter. Whether that is good or bad depends on your idea of how a word processor should behave. As is, the program is powerful in many areas and lacking in others.

Installation of this program is straightforward. It's not copy protected, and a convenient batch file will copy it onto a diskette or any directory on a fixed disk.

DisplayWrite 2 relies on numerous menus, the function keys, and a few Ctrl-alphabetic combinations for its command structure. A large and cumbersome keyboard template is provided. It's designed to sit on top of the entire keyboard. The main menu includes options such as Create, Revise, Paginate, Print, Spelling, Merge, Document Utilities, Change Text Defaults, Change Workstation Profile, and Exit to DOS.

The text entry screen is filled with useful information displayed on the first three lines of the display: the name of the document, the page number, the line number, the keyboard extension (different keyboard layouts can be set), and the type pitch. Just below is a ruler line depicting the cursor position, margins, tab types, right edge of the page, and a center point indicator.

Custom color selection is not available, and although the formatting codes are normally hidden from view, the display is not WYSIWYG—double spacing, for example, is not shown. However, boldface and underlining are displayed on-screen.

SLOW GOING Cursor movement is limited. You can't move by word, sentence, paragraph, and to the beginning or end of a document because you have only the normal PC cursor keys to work with. In addition, I found that cursor movement in general was slightly slow, as I could not move from line to line without a small delay.

The program's formatting capabilities are powerful, though. You can choose to display the formatting codes for editing and change the format anywhere in the

document. System defaults for fonts, margins, spacing, lines per inch, the hyphenation zone, paper and envelope size, headers and footers, and even the paper feed can be changed at will.

I wasn't too happy with DisplayWrite 2's page-oriented style. When writing, you must manually end each page if you wish to get an accurate representation of the page count. If changes are then made to previous pages or new formatting codes are inserted, the document must be repaginated (an option from the main menu) for it to be printed correctly.

Blocking text for a cut-and-paste operation is accomplished easily and logically. After selecting the appropriate command, you are prompted to highlight the text and then move to the location where you want

the text moved or copied to. Deletions work the same way. Unfortunately, you cannot cut text, do other editing tasks, and then retrieve the text for insertion. The blocking strategy requires you to act then and there. The block command also enables you to boldface and underline previously entered text, but it will not allow you to save blocked text to another file or append to another document.

Headers and footers can be on multiple lines, and there is a provision for alternating them on odd and even pages. They can also be omitted from the first page and started wherever you like. Page numbering contains the same options, and renumbering can be accomplished automatically or selectively.

DisplayWrite 2's search-and-replace



EXPANDED FACT FILE

DisplayWrite 2 1.10

IBM Corp.
Old Orchard Rd.
Armonk, NY 10504
(800) 447-4700

Requires: 192K RAM, 2 disk drives,
CIRCLE 646 ON READER SERVICE CARD

List Price: \$385



FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JN, JM
Margins: LM0, RM0, RM1, RM2, RM3, RM4, RM5, RM6, RM7, RM8, RM9, RM10, RM11, RM12, RM13, RM14, RM15, RM16, RM17, RM18, RM19, RM20, RM21, RM22, RM23, RM24, RM25, RM26, RM27, RM28, RM29, RM30, RM31, RM32, RM33, RM34, RM35, RM36, RM37, RM38, RM39, RM40, RM41, RM42, RM43, RM44, RM45, RM46, RM47, RM48, RM49, RM50, RM51, RM52, RM53, RM54, RM55, RM56, RM57, RM58, RM59, RM60, RM61, RM62, RM63, RM64, RM65, RM66, RM67, RM68, RM69, RM70, RM71, RM72, RM73, RM74, RM75, RM76, RM77, RM78, RM79, RM80, RM81, RM82, RM83, RM84, RM85, RM86, RM87, RM88, RM89, RM90, RM91, RM92, RM93, RM94, RM95, RM96, RM97, RM98, RM99, RM100, RM101, RM102, RM103, RM104, RM105, RM106, RM107, RM108, RM109, RM110, RM111, RM112, RM113, RM114, RM115, RM116, RM117, RM118, RM119, RM120, RM121, RM122, RM123, RM124, RM125, RM126, RM127, RM128, RM129, RM130, RM131, RM132, RM133, RM134, RM135, RM136, RM137, RM138, RM139, RM140, RM141, RM142, RM143, RM144, RM145, RM146, RM147, RM148, RM149, RM150, RM151, RM152, RM153, RM154, RM155, 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facility has its good and bad points. There is a separate case-sensitive command to find strings in a document and a full-blown search-and-replace menu. From this menu you can select case sensitivity and input up to three different pairs of character strings. But using this system requires many keystrokes, and if you should go back to it, you must reenter all the parameters again.

DisplayWrite 2 includes right, left, centered, and decimal tabulation, autoindentation, overstrike, prompted or automatic hyphenation, sub- and superscript capability, text columns (not snaked), math columns with calculations, and a mail-merge facility.

The most surprising flaw in the program is its speller. The speller won't check words for you during editing; instead, you must tell the speller the document you want checked and the page range. Two modes are offered: prompted (in real time) or automatic, which marks the misspellings in the document. When in the prompted mode, the speller relies on you to make the corrections. It will not suggest words for you. You do have the option to mark the misspelling to be highlighted in the document, correct it yourself, or add the word to the user dictionary. The latter response requires you to remember to save your additions before exiting the spelling menu because the 4,500-character buffer must be manually transferred to a document file. You can specify as many user dictionaries as you like.

DisplayWrite 2 supports a mere four printers, but aside from this poor support, the program handles printing well. It features both foreground and DOS background printing, multiple copies, page ranges, and the ability to queue up to ten different documents and change their print order at will. Surprisingly, there is no provision to insert printer control codes in your text, which would enable *DisplayWrite 2* to support more printers.

FILE MANAGEMENT File handling is average. You must name your document before starting on it, and a files directory (which can only be accessed from a menu screen) is available for choosing a document for revision. The directory includes all the familiar DOS information, and files are chosen via their assigned letters. When

you name a document, you can assign your own extension to it, or the program will fill it in for you with .TXT as a default.

Unfortunately, there is no provision for saving the document you are working on under a different name, but you can merge another document at the cursor position. Nor is there a quick save feature. To save all changes you must exit the edit mode, whereupon saving the entire document occurs automatically. However, individual pages are saved whenever you issue a page-end command.

During a heavy editing session the document may become a much larger disk file than necessary, and in order to get the file down to normal proportions there is a compress utility that takes care of this. *DisplayWrite 2* will import ASCII files but not export them. Why IBM chose to limit ASCII export is beyond me.

Finally, the documentation is not only incomprehensible (I had to call IBM to find out how to do really simple things) but, amusingly, printed sideways. Instead of flipping the pages from right to left I had to flip them up and down.

DisplayWrite 2 is packed with useful features that any word processing department or professional can use. But, getting these features to work smoothly is another matter because there are just too many menus and keystrokes necessary for even the simplest of tasks. Flexible it may be, but convenient, well, that's another story.—Dawn Gordon

DISPLAYWRITE 3 1.00

DisplayWrite 3, unlike its little brother *DisplayWrite 2*, is a capable, powerful, corporate word processor. Although it doesn't offer multiple document editing, split screens, a built-in thesaurus, or the ability to generate a table of contents or index, IBM's *DisplayWrite 3 1.00* has just about everything else.

DisplayWrite 3 resides on four diskettes and is not copy protected. You can install it easily in any system through a convenient batch file. Because of the program's bulk, I recommend using a hard disk.

The program is menu driven, and its menu commands rely on the function keys

and a few Control-alphabetic key combinations. A large keyboard template offers quick reference.

The main menu gives you numerous choices: Create, Revise, Paginate, Print, Spelling, Merge Documents, Merge with File Disk, Create File Description, Reuse File Description, Document Utilities, Profile, DOS Commands, and Return to DOS. When you select Profile, you can change every system default, such as formatting, keyboard, printing, and screen definitions. You can save as many different default profiles as you wish—a powerful option. Custom color choices are also available.

Except for the first three lines that make up the status display, the text entry screen is blank. These three lines contain the document name, page number, line number, keyboard extension (which you can set for different layouts and assignments), the pitch, and even the print job. Just below them, a ruler line displays the cursor position, margins, tab types, right edge of the page, and a center-point indicator.

The display is not WYSIWYG; double spacing and formatting codes are hidden from view. However, bold and underlined characters do appear on-screen.

You can move by word, sentence, and paragraph, and to the beginning or end of a document only by using the character, line, screen, and page keys. I found cursor movement slightly sluggish. However, a Goto key gives you instant access to specific pages.

Fortunately, this program's powerful formatting capabilities make up for its other deficiencies. You can display formatting codes for editing and change formats anywhere in the text. Printing alternate formats, switching fonts, paper feeding, and other details are managed easily.

I wasn't too happy with *DisplayWrite 3's* page system. You must end each page manually to get an accurate page count. If you then make changes to previous pages or insert new formatting codes, you must repaginate the document (an option from the main menu) to print it correctly.

Blocking text to be moved, copied, deleted, or stored is easy and logical. As with many other word processors, once you start a text insert, you cannot edit other parts of the document until after you've



completed the block move. You can save a block under a filename or to ASCII, but you cannot append a block to an existing file. However, the block menu gives you the options to retrieve a saved block and to undo the last cut and paste.

The program's header and footer support is more than adequate. Multiple lines are available, and I found alternating headers and footers convenient to use. You can turn off both page numbering and headers and footers for the first page.

DisplayWrite 3's search-and-replace system is good in some ways and not so good in others. A separate case-sensitive command finds strings in a document, and a full-blown search-and-replace menu lets you input up to three different pairs of search-and-replace strings. But using the system requires numerous keystrokes, and returning to the menu requires reentering all the parameters.

PROMPTED AND AUTOMATIC SPELL CHECKS

The program's spelling checker has some flaws, but otherwise it's quite good. During writing you can spell-check a word or the page you are working on. But for a full spelling check you must exit the document and specify the document you wish to check. Two modes are available: prompted and automatic. The automatic mode finds all the words not in the dictionary and marks them in the document for later revision. The prompted mode works the way most spelling checkers do: it finds misspellings in context and highlights them for correction. Unlike *DisplayWrite 2*, this program suggests corrections when asked. If a word is correct, you can have it marked in your text or added to the user supplement; in the latter case the word is added to the 4,500-character buffer and not questioned again. There's a slight catch, though: After the spelling check, you must tell the program to add the words you want to save to the supplement; or else it dumps the buffer. Options for adding and ignoring words during the spelling check would be better. However, you can define as many different dictionary supplements as necessary.

DisplayWrite 3 handles many tasks well. It has a convenient footnoting system, a line-drawing facility that can use any character, comprehensive outlining,

powerful mail merge with dedicated field data, a four-function math in columnar format, and a macro system that uses filenames or function keys in conjunction with the Shift and Alt keys for recalling commands. The macro system is necessary to speed up the use of *DisplayWrite 3* because of the program's numerous menus and keystrokes. Although the macros do speed things up considerably, they're not foolproof. If a macro is not properly set up, the keyboard can lock after execution, and resorting to Ctrl-F10 will be necessary.

Printer support is marginal, comprising only five printers (four IBM and one NEC), plus an ASCII text printer as a sixth choice. But if you want access to all your

printer's features, you'll have to use *DisplayWrite 3's* separate printer definition program to set up a driver. Other features include: both foreground and background printing, queuing up to ten different documents for printing, and changing or canceling the job number, page ranges, and number of copies.

The program's file-handling capability is average. You must name a new document before starting on it. A files directory that includes all DOS information is available from any menu, and you can use it to edit. Although you cannot save the document you are working on under a different filename without using the block command, you can import a *DisplayWrite* doc-



EXPANDED FACT FILE

DisplayWrite 3 1.00

List Price: \$450

IBM Corp.
Old Orchard Rd.
Armonk, NY 10504
(800) 447-4700

Requires: 256K RAM and an additional 64K needed for background print, disk drives.

CIRCLE 887 ON READER SERVICE CARD



FORMATTING FEATURES FOR FINAL TEXT

Paragraph Format: JL, JR, JN, JM
Margins: LM:0, RM:999, AI
Line Spacing: LS:1-3, LF, KP, KN, WC, OC
Character Format: VP, PS, AP, PW, BO, IT, UL, SP, SB, ST, SC, CB, ASC, CT
Page Format: LIT, LIT, GL, GR, LP:9990, HT, HL, HR, FT, FL, FR, PL:9990, PW:999, MP
Tabulation Format: TL, TR, TD, TC, DC
Header/Footer: SL, UM, OF, UP, AN, RN, PA, THF
Multiple Column: TC, NC, UC
EDITING SCREEN DISPLAYS
Nontext Display: RC, CC, LN, PN, DF
Text Display: SL:20, SC:80, WA, WD

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, BA
Deletion Features: CD
Character Formats: HH, SH, HB
Cursor Movement: CM, CK, MS, NC, NL, NSG, NPG, BL, BSC, BPG, SU, SD, SL, SR, JC, JP
Block Editing Tools: HL, AB, CH, WD, LN, MV, CP, DE, FC, AR
Search and Replace: FO, CS, CP, WW, AS, FS, FR, VY
Undo Utility: UD, NA

PRINTER SUPPORT

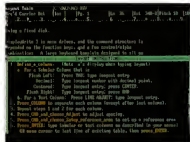
NP, S, UP, EO, QU, PW, PS, AE

FILE HANDLING

Document File Strategy: LM, PG, DF, CI, OTH
Document Saving: NB, MS, EA, EL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IBM, IOTH, EAP, EIBM, EOTH

SPECIAL FEATURES

Spelling Checker: WD: 000000, UG, UD, SW, ED, IC, BG, BM, AD, MM, QK
Other: KM, CK, CS, MM, MMD, FP, FS, GR, FL, SC, OG, TM, HD, MT, MA



DisplayWrite 3 uses pop-up menus to help users format (or "layout") their manuscripts without having to leave edit mode.

ument or ASCII text file to the cursor position. No quick-save feature is available, and saving your document requires exiting the edit mode, which saves it automatically. Page saving occurs when you issue the Page End command. During a heavy editing session the document may become a much larger disk file than necessary, and to get the file down to normal proportions, you must use the file compress facility. Thankfully, a patch to DOS on the main menu enables you to exit the program, execute DOS commands, and then return to DisplayWrite 3.

DisplayWrite 3's documentation is much better than DisplayWrite 2's. I've seen better manuals, but at least IBM is improving.

DisplayWrite 3 is a powerful program. Personally, I dislike a menu-driven system that requires me to leave my document to print or perform other functions, especially when I have to reload the document each time I exit to the main menu. A menu-driven system is, however, easier for many people to use, and so if you want a flexible menu-driven word processor, DisplayWrite 3 is worth considering.

—Dawn Gordon

LEADING EDGE WORDPROCESSOR 1.3

What makes a good corporate word processor? The program must be rich with features (including the ability to create boilerplate from text, print from a queue, and check spelling), must extend its operation to manage DOS functions such as creating directories and backing up disks, and must be relatively easy to learn. *Leading Edge Word Processor 1.3* fills the bill. Since it's operated primarily through a function-key command structure similar to that used in *MultiMate*, you might say *Leading Edge Word Processor* is *MultiMate*—without the strict Wang emulation—for less than one-half the price.

The program is not copy protected and can be installed on a hard disk without a key disk. An on-disk tutorial primer acquaints novices with basic word processing operations and how *Leading Edge* im-



EXPANDED FACT FILE

Leading Edge Word Processor 1.3

Leading Edge Software Products Inc.
21 Highland Circle
Needham, MA 02194
(800) 343-3436
(617) 449-4635

List Price: \$100
(\$250 with spelling
checker and
mail merge)



Requires: 256K RAM, DOS 2.0 or later, two disk drives.

CIRCLE 686 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:1, RM:200, AO
Line Spacing: LS:0-3.5, LF, WC, OC
Character Formats: VP, BO, IT, UL, SP, SB,
ST, CB, ASC
Page Formats: LIT, GL, GR, LP:88, HT, HL,
HR, FL, FR
Tabulation Format: TL, TD, TC, DC
Header/Footer: SL, UM, OF, UP, AN, PA,
THF

EDITING SCREEN DISPLAYS

Nonstop Display: RC, CC, LN, PN, DF, DA, TI
Text Display: SL:21, SC:80, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OD, DA, CA
Deletion Format: CD
Character Features: AC, HH, HB
Cursor Movement: CK, NC, NL, NW, NS,
NSC, NPG, BL, BS, BSC, BPG, BD, SU,
SD, SL, SR, JP, JM
Block Editing Tools: HL, PH, CE, BC, MV,
CP, AR, HA, AW

Search and Replace: FO, BK, CS, CI, CP, WV,
AS, WS, VY
Undo Utility: UA

PRINTER SUPPORT

NP:90, PT, SF:1, EO, CH, PS, OF

FILE HANDLING

Document File Structure: LM, DF, OTH, .
DS:360000

Document Savings: AB, DB, AT, MS, EA, IN
DOS Facilities: DR, MU, CDK, ADK, SDR
File Import and Export: IM, IAL

SPECIAL FEATURES

Spelling Checker: WD:80000, UG, SW, ED,
IC, BG, MR, IM, AD, QL
Other: RM, CS, MM, MMD, TM

Editing: LSP, LSPN, LSPN-8
Page: L, Line, 46/7, Position

as a "Standard Document" is a word processing document used to maintain the document's structure. The document is created on the fly. The user can also use the program to create a document structure that is not a standard document. This allows the user to create a document structure that is not a standard document. This allows the user to create a document structure that is not a standard document.

PC Magazine Word Processing Study

The LEW document editor receives the top five rating for corporate word processors. The program, however, is not a standard document editor. The program, however, is not a standard document editor. The program, however, is not a standard document editor. The program, however, is not a standard document editor.

The same document inhabits two "split screen" windows in *Leading Edge Word Processor*. Notice that the page header is visible on the WYSIWYG screen.

plements them. For more experienced users, the manual prescribes selected chapters. For help while using the program, a keyboard template and quick-reference pamphlet supply 75 percent of the knowledge you might call on while using the program. But, while on-line help is available, it comes in the form of "key help" (you press the key you need help with to have the program display an appropriate help screen). The absence of a help index means you cannot ask for help with a specific function unless you already know the key used to implement that function.

FOLDERS FOR YOUR FILES

Access to *Leading Edge* begins with a document management utility that allows you to cre-

ate "folders": logical units that contain document files. Within the program, folders perform a function similar to that of DOS subdirectories: They allow you to organize your files by type and restrict your work to only one type at a time. Although these folders are similar in function to DOS subdirectories, creating one does not create a subdirectory on the disk. The document management utility also allows you to address different disks or subdirectories and copy, rename, or back up individual files or entire folders. The start program also automatically creates backups of your files as you work. Although *Leading Edge* lacks a document summary screen to store descriptive notes about a document, it does provide a summary of the document's cre-



ation date and time and the date and time of its last modification.

Each time you open a new folder, *Leading Edge* creates what it refers to as a "standard document"—a document you use to establish all default settings for documents subsequently created in that folder. This feature not only allows you to customize normal system defaults (such as *Leading Edge*'s unusual 12-pitch setting), but you can also specify document text as part of that default. When combined with the organization-by-folder strategy, this arrangement lets you store custom form templates quite easily.

The *Leading Edge* document screen reserves the top four lines for conveying system information, and the program also employs color effectively. Text entry is the dominant mode: once you create or retrieve a document, you can immediately position the cursor and begin typing. The program offers a WYSIWYG-oriented display that features automatic reformatting of text, on-screen page breaks, and symbolic highlighting for font changes and underlining. In addition to underlining (which occurs underneath existing text), an on-screen underscore (which fills a space with an unbroken underscore) is available, presumably for the creation of form templates. Headers and footers are not only possible, but you may display them on the screen where page breaks occur if you wish.

WHOSE DEFAULT IS IT? The default setting for insert/overwrite mode is overwrite. I repeatedly found myself mistakenly overtyping because I assumed I was in insert mode (the default most users prefer). Another small problem is that the "end of line" cursor movement command, instead of moving to the end of the last word on the line, moves the cursor to the right-margin limit. Typing at this position causes an immediate word wrap to the next line, making it awkward to append text to the current line.

One *Leading Edge* feature qualifies as "it's-about-time-someone-thought-of-that" design. Most WYSIWYG word processors constantly reformat text as characters are removed with the Delete key. Thus, in the midst of a long string of deletions, the extra delete commands can stack

up in the keyboard buffer, leading to unnecessary deletions. In my tests, *Leading Edge* never let the Delete key fall more than one character behind the screen even if held down constantly; that extra character can be recalled through an undelete function (as can entire blocks of deleted text).

Leading Edge Word Processor employs a virtual memory management scheme that automatically (and unobtrusively) saves your document as you work to guard against catastrophe in the event of a power failure and moves data on and off the disk as you work to allow you to create documents that exceed the size of available memory. This design provides the best of both worlds: because as much of the document is stored in RAM as possible, global operations such as repagination are faster with *Leading Edge* than with programs that keep only one page in memory at a time. Yet unlike word processors that are entirely RAM based, you can still edit documents larger than memory.

COMMAND STRATEGY Most *Leading Edge* commands are executed through the use of some mixture of function keys, numeric keys, or special keys (such as Scroll-Lock). Unlike *MultiMate*, *Leading Edge* avoids the use of normal alphanumeric keys in association with control or alternate keys and handles some operations through the use of menus. Its menus resemble those in 1-2-3: they are displayed at the top of the screen and are actuated by pointing and pressing Enter.

A third menu provides commands used primarily in building macros to support custom data entry. Macros are available in three varieties: text macros (for boilerplate) store frequently used words, phrases, or paragraphs; keystroke macros automate sequences of keystrokes consisting of data entry, command selection, or both; and customizing macros add to these two such functions as user-defined prompting and temporary pauses for data entry that can be used to support operations such as filling out forms and creating standard legal documents. The program supports a "learn" mode that records keystrokes into a macro. Once recorded, the program allows you to recall them by name or by choosing the one you wish

from a menu. The combination of these features places this facility within easy reach of novices.

The designers of *Leading Edge Word Processor* seem to have been influenced, at least in part, by the Macintosh's design: in place of a move or copy command, you find a cut-and-paste command. To move, you cut some text out of the document (it disappears from the screen and is stored in an invisible buffer), then move the cursor to the target location and enter the paste command (it reappears in the new location). To copy, you must cut (the text disappears), then paste immediately (the text reappears in its original location), then move to the target location and enter the paste command once more. You can paste the cut text into an unlimited number of locations. The next cut operation will overwrite the last text cut into the buffer.

Should you wish to preserve a cut for future use, a Named Cut command allows you to maintain numerous cuts simultaneously. To augment that feature, the program allows you to either request these named cuts by number or review a directory of stored cuts and select among them as you would with a menu.

I also appreciated *Leading Edge Word Processor*'s ability to restrict a search-and-replace operation to whole words (substring searching is available as well): a search restricted to whole words would replace *ham* with *chicken* but leave *North-hampton* unmolested.

Other features deserving mention are the program's 80,000 word Proximity/Merriam-Webster Linguibase spelling checker, toll-free support lines, and a merge facility that is capable of accepting files prepared with any program that can output a file delimited with commas and double quotes (a standard data storage format supported by *WordStar's MailMerge*, *dBASE II* and *III*, and BASIC data files).

Leading Edge Products Inc. offers a full-featured, well-supported word processor suitable for use in heavy word processing environments that do not require strict Wang emulation. This program is a gem; and at \$250, it's also a gem of a bargain. Even better: If you don't need spelling correction and a mail-merge function, *Leading Edge* will sell you just the word processor for \$100.—**Dick Ridington**

MASS-11PC 5-C


Over 50,000 people use the **MASS-11** word processor. It has its own user groups, computer bulletin board, and quarterly newsletter. Yet you may not have heard of it because **MASS-11** is actually a VAX/VMS mainframe program that's been formatted for the PC. Both the VAX and PC versions are products of Microsystems Engineering Corp. (MEC). **MASS** stands for Microsystems Administrative Support System, and 11 refers to the DEC PDP-11 computers for which **MASS-11** was originally developed.

MASS-11pc 5-C is ideal for corporations that are introducing IBM PCs (or Digital Equipment Corp. Rainbows) into an environment where the **MASS-11** program is already used on a VAX system. **MASS-11pc** has integrated communications software so the PC can act as a VT-100 terminal for the VAX, either directly connected or over the phone lines. More important, you can transfer **MASS-11pc** word processing files back and forth between the VAX and PC without losing any formatting.

For non-VAX corporate environments, **MASS-11pc** has some features that make it valuable for scientific or technical writing or work that requires extensive column-manipulation. But as a general-purpose corporate word processor, **MASS-11pc** is really no more functional than packages like *Microsoft Word* and IBM's *DisplayWrite 3*, both available at a much lower price and both much easier to learn.

MASS-11pc comes on nine disks accompanied by a large-format, loose-leaf user's guide, separate *Demo Guide*, a *Printer Reference Manual*, plus quick-reference books and cards. The installation is pretty easy considering the bulk—a batch file just copies everything to a subdirectory on your hard disk.

Although the program has to do lengthy disk accesses at the opening menus, **MASS-11pc** is quite fast and agile once you're editing. The first four function keys have very special meanings in **MASS-11pc**. The F1 "Initiate" key begins an editing command. Usually you follow it with a mnemonically defined letter. The F2 "Execute" key carries out the com-




MASS-11pc 5-C
Microsystems Engineering Corp.
2800 W. Hassell Rd., #300
Hoffman Estates, IL 60195
(312) 882-4011

Requires: 320K RAM, 256K without
spelling checker, hard disk recommended.

CIRCLE 605 ON READER SERVICE CARD

EXPANDED FACT FILE

List Price: \$995



FORMATTING FEATURES FOR FINAL TEXT
Paragraph Formats: JL, JN, JM
Margins: LM:1, RM:250, AO
Line Spacing: LS:9, LF, WC, OC
Character Formats: VP, PS, PW, BO, UL, SP, SB, ST, CB, ASC
Page Formats: LIT, LLT, GL, HT, FT
Tabulation Format: TL, TR, TD, TC, DC, FC
Header/Footer: ML, OF, UP, AN, RN, PA, PR, PO, THF
Multiple Columns: TC, NC, CP:30, UC, GW

EDITING SCREEN DISPLAYS
Nontext Display: RC, CC, LN, PN, DF
Text Display: SL:22, SC:80, WA


TEXT ENTRY AND EDITING
Typing/Editing: FC, IT, ED, CA
Deletion Formats: CD, WE
Character Features: AC, HH, SH, HB
Cursor Movement: CK, SD, NC, NL, NW, NS, NP, NSC, NPG, BL, BSC, BD, SU, SD, SL, SR, JC, IL, JP
Block Editing Tools: HL, AB, MV, CP, DE, CR, AR, HA, DF, TM, AW, HF, FN
Search and Replace: FO, BK, CS, CI, AS, FS, FR, VY
Undo Utility: UD

PRINTER SUPPORT
NP:12, UP, CH, PW, PS, OF
FILE HANDLING
Document File Strategy: LM, PG, FF, CT, OTH, DS:25

Document Saving: AB, EN, EA, PL
DOS Facilities: DR, MU, SDR, SDR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES
Spelling Checker: WD:50000, UG, ED, IC, BG, MR, IM, AD, QK
Other: KM, SF, MM, MMD, FP, FS, FE, FF, AT, GR, FL, SC, DV, TV, TM, HA, MS, MT, MA, TC

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MASS-11pc 5-C's editing screen will be familiar to anyone used to the VAX/VMS mainframe program that it was adapted from.

mand. F3 "Attribute" is used for formatting features, and F4 is a universal "Cancel" command much like Esc is in other programs.

For instance, pressing F1 followed by D will delete a block. After you highlight the text (either manually or more quickly with cursor movement), you press F2 to carry out the deletion or F4 if you decide not to delete the text after all.

Unfortunately, pressing F1 has no effect on the display, so it doesn't seem like you're initiating a command. I would really like to have seen some sort of menu, even an incomplete one listing only some of the common commands or, at least, a message telling me that I was in command mode.

Users of *DisplayWrite 3* or *MultiMate*

will recognize the ruler line concept used in **MASS-11pc** for setting margins and tabs. **MASS-11pc** supports left- and right-justified tabs, centered and numeric tabs, paragraph indent tabs, and bibliography (actually "outdent") tabs. You can have multiple ruler lines stored throughout your text document.

MASSEXCELLENCE **MASS-11pc** really excels in several areas. For example, you can easily number your pages in arabic or roman numerals or even letter sequences, and you can also create "number sets" for different numbering schemes. This concept is also used for paragraph or item numbering within a document.

An equation-editing facility allows you to create and edit multilevel scientific



equations. (The equations require a Hercules or EGA board for screen display.) You not only can do extensive numeric column editing, including column and row calculations, but *MASS-11pc* also has a built-in five-function calculator that can direct results to an area in your text.

A "redline" feature allows you to keep original and altered text in the document and print it out with dashes through the deletions. *MASS-11pc* can also handle keyboard macros, text glossaries, footnoting, and mail merge. Although the mail-merge facility itself has no conditionals, *MASS-11pc* includes databaselike list processing, so that you can sort and select elements from your data file before you do the merge printing.

You can draw boxes and lines on the screen with a few simple commands, and you can switch into a vertical text mode so that you can run type along the sides of the boxes. In addition, some embedded commands allow more sophisticated drawing (such as circles, arcs, and line charts) for laser printers.

The spelling checker is poor for a package this large. Although it has all the expected features (including a user dictionary, in-context display, and suggested corrections), the dictionary contains only 50,000 words and has problems with suffixes. It flags many common words as misspelled, such as *computers*, *mainframe*, *callbacks*, and *updates*. The suggested corrections are based on spelling rather than phonetics or proximity, so the spelling checker is not as "intelligent" as those found in many PC word processing programs. *MASS-11pc*, for instance, did not suggest that *tyr* could be *our*.)

The printer support is disappointing since only 12 PC printers are listed on the menu (including Hewlett-Packard and QMS laser printers). However, you can extend this list by editing the printer control sequences used by *MASS-11pc* to support other printers.

VOLUME DISCOUNTS Although at \$995 *MASS-11pc* is expensive by PC standards, the prices drop significantly for volume purchases, down to \$295 for 1,000 or more copies. In addition, nonprofit educational purchases of *MASS-11pc* cost about half of the commercial price. The program

is regularly updated four times a year. (According to a representative at MEC, by the time a review like this appears in print, the version is already outdated.) The first update comes with the initial purchase price; subsequent updates cost \$100.

Microsystems Engineering strongly encourages users to acquire formal training in *MASS-11pc* in a 3-day six-person class at \$600 per day per class. Alternatively, the *IBM PC Demo Guide* has a written tutorial that can be used in conjunction with supplied sample files. After spending 2 days with the tutorial and sample files, I felt fairly comfortable using the basic features of *MASS-11pc*, but more-advanced use definitely requires a lot of memorization of commands.

The program includes an extensive help facility with a nine-screen index and about one screen per topic, but it's not context sensitive. Help requires a disk access and then some maneuvering to look up the topic, and so I didn't find it as convenient as on-line help should be.

The most unfortunate aspect of *MASS-11pc* is obviously the price. Most of the features of the program are comparable to PC word processors listing at one-third to one-half the \$995 that MEC charges in single quantities. With a significant price cut and some more operational flash, *MASS-11pc* could be a corporate contender. As it is, this package is mainly for companies already using *MASS-11* on the VAX.

—Charles Petzold



EXPANDED FACT FILE

MultiMate 3.3 Series Professional Word Processor 3.31

List Price: \$495

MultiMate International Corp.
52 Oakland Ave.
East Hartford, CT 06108-9911
(203) 522-2116

Requires: 256K RAM, DOS 1.1 or later, two disk drives.

CIRCLE 684 ON READER SERVICE CARD



FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:1, RM:156
Line Spacing: LS:3, LF, WC, OC
Character Formats: VP, PS, BO, UL, SP, SB,
ST, SC, CB, ASC, CT
Page Formats: LIT, GL, GR, LP:195, HT, FB,
MP

Tabulation Formats: TL, TC, DC
Header/Footer: ML, OF, UP, AN, RN, PA,
THF

Multiple Columns: NC

EDITING SCREEN DISPLAYS

Nontext Display: CC, LN, PN, DF
Text Display: SL:23, SC:80, WA

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OD, DA, CA

Deletion Formats: CD

Character Features: SH, HB

Cursor Movement: CK, SD, NC, NL, NW,

NSC, NPG, BL, BSC, BPG, SU, SD, SL, SR,
JP, JM

Block Editing Tools: HL, AB, WD, LN, SE,

PH, CO, MV, CP, DE, AR, HF

Search and Replace: FO, CS, CI, WW, AS, VY

Undo Utility: NA

PRINTER SUPPORT

NP:275, UP, PT, EO, QU, PW, PS, OF

FILE HANDLING

Document File Strategy: PG, DF, CI, CS, OTH,
DS:128000

Document Savings: AB, DB, MS, ER, PL

DOS Facilities: DR, CDK, CDR

File Import and Export: IAP, IIBM, IWS,
IOTH, EAL, EIBM

SPECIAL FEATURES

Spelling Checker: WD:80000, UG, DB, ED, IC,

BG, MR, IM, AD, MM, QK

Other: KM, CS, MM, TM, MT



MultiMate 3.3 Series' Wang-like editing environment makes it the standard for a whole genre of corporate word processors.

MULTIMATE 3.3 SERIES PROFESSIONAL WORD PROCESSOR 3.31

Because the design of the *MultiMate 3.3 Series Professional Word Processor 3.31* is based on the Wang dedicated word processor, it's particularly well suited for clerical use in corporate environments where Wang systems are also present. Recent improvements in *MultiMate 3.3 Series* have broadened its appeal to other markets, but the program is still unwieldy as a compositional tool.

With the introduction of several related products, *3.3 Series* is Multimate International's preferred title for the current version of their original word processing program. The specific version I tested was 3.31. Multimate International offers site licensing and volume discount arrangements for the *MultiMate 3.3 Series* program. Several local area network versions are also available.

Like the Wang system, *MultiMate 3.3 Series* is suited for clerical word processing use because the editing commands closely mimic what a typist must do with a document that has been marked up for revision. If something is crossed out, the operator would first position the cursor where the cross-out begins, press Del, move the cursor to where the cross-out ends (either manually or with a variety of text-selection function keys), and then press Del again.

If something must be inserted, the operator moves the cursor to the insert position and presses Ins. In the default configuration, the remaining text clears from the screen (leaving a half line down at the bottom), and the operator can insert the new text. When the insert is completed, the operator presses Ins again, and the remaining text comes back. This process is the classic "drop-down insert," in word processing terminology. When you're using *MultiMate* as a writing tool for free-form composition, drop-down insert is a continual nuisance, both because you don't get a good feel for context and because you can't insert within your insert unless you

end the current insert and start another one.

The best news for nonclerical users is that *MultiMate 3.3 Series* now has an alternative to drop-down insert. It's hidden away in the "change system defaults" menu, but you can change insert mode to "push-ahead" so it now works like most other word processors. (Hey, this company listens and responds to gripes!)

PAGE FETISHISM *MultiMate 3.3 Series* is page oriented. Although this is not uncommon among word processors, *MultiMate* more than others treats the page almost as a fetish. The program keeps only one page of a document in memory at any time, and moving from one page to another requires a disk access. On a floppy disk system, this takes about 4 or 5 seconds for a single-spaced page. If you're doing a lot of free-form editing on a paragraph that is split between two pages, you'll want to combine the pages; going back and forth between them will drive you berserk. But be careful because if you do too much page combining, you'll get a "page full" error, which means you have exceeded the 6,000 characters-per-page limit.

The good thing about *MultiMate's* page orientation is that you cannot lose more than one page of edits even if power fails during editing. However, it also means that you cannot quit a current edit session and go back to your preedit version of a document if you happened to do a disastrous global search and replace. (Another "change system defaults" selection allows the creation of a backup before editing, which helps in that situation.)

Page orientation also requires repagination after editing to restore the right page lengths. On a two-floppy system repagination takes about 10 to 15 seconds per document page.

MultiMate 3.3 Series's implementation of headers and footers is particularly odd. Previous versions of *MultiMate* could actually move a footer to the top of the next page during repagination, but with Version 3.31 your headers and footers may be either "page associated" or "text associated." Page-associated headers and footers stay with the page they were typed in but are included in the lines-per-page count. In text mode a header acts as a page break, the footer may be repaginated to a

new page, and the line count excludes the headers and footers. You think this is confusing? You bet it is.

Another problem involves documents with intermixed text and small tables, which are common to office writing. *MultiMate 3.3 Series* has no facility to keep a whole table on one page, which is usually referred to as a conditional page break or a paragraph "keep." With *MultiMate*, you have to page through your document manually and put hard page breaks right before any table that repagination happened to split between two pages, then repaginate from that page on, and then continue the search. You have to do this all over again (removing the previous hard page breaks), every time you do any editing that changes page lengths.

MultiMate 3.3 Series includes many admirable features. Each document has its own extensive information screen, which, if the operator diligently fills it in, can be used for document searches. The program includes well-designed and potentially valuable "key procedures" (text keyboard macros) with pauses and prompts, libraries for storing frequently used text, a good spelling checker, mail merging (unfortunately with no conditionals), and extensive printer support.

The half-hour tutorial program is colorful and uses lots of diagrams, but the material covered is only rudimentary, and for most of the time the trainee just reads the screen. The printed documentation is divided into three books: a beginner's guide, a reference manual, and an advanced user's guide. This split initially looks good, but the index is included only in the reference manual, and you'll often have to check at least two of the books for information. The reference manual contains all the commands, for instance, while the beginner's guide discusses all the menus. The beginner's guide also includes a tutorial, which you'd be well advised to rely on more than the on-screen tutorial when learning the *MultiMate 3.3 Series*.

One beautiful inclusion in the package is a large, clear keyboard layout that you'll want to mount on the wall someplace close to your PC. Since *MultiMate* defines all function keys, shift-function keys, Ctrl-function keys, Alt-function keys, plus many Alt-letter, Alt-number, and Ctrl-cur-



sor keys, I doubt that anyone can use all the program's features without it, even though the program includes extensive context-sensitive help screens.

CLERICAL OR COMPOSITIONAL?

Before you select *MultiMate 3.3 Series* as the IBM PC word processor for the clerical personnel in your office, you'll want to consider some serious questions: Do you plan to install PCs on the desks of your managers and executives so that they can do their own writing? Will your choice of *MultiMate* lock them into using a program that is lacking as a writing tool, or should you select another word processing program better suited to composition and risk creating compatibility and document transfer problems between your executives' program and their secretaries'?

If you've already invested in clerical training on Wang systems, *MultiMate 3.3 Series* may be the ideal IBM PC word processor for your corporation. But if you also want managers and executives to use their PCs for writing, you may have to swallow the loss in your investment and consider purchasing a word processing program more suitable for everyone involved.

—Charles Petzold

processing improvements. The new data management functions include a set of "information handling" commands and a separate add-on 3-by-5 index card emulator called *MultiMate On-File*. The combination gives *MultiMate Advantage* many of the capabilities of standalone flat-file DBMS programs, such as the ability to design templates (complete with default values) and to sort data on any field in the template. These capabilities make *MultiMate Advantage* an exceptionally versatile instrument for mail-merge operations.

A CREDIBLE WANG CLONE *MultiMate Advantage's* chief selling point, however, remains its "Wangishness." The product is no longer the only Wang clone in town, but it's still the most credi-

ble one, and Multimate International has recently moved to bolster that credibility by adding a couple of hardware products to its line. Included are a dedicated keyboard (made by Cherry and available for \$295) and a combination asynce/bisync communications board (\$995) with software to facilitate file transfers between the PC and a dedicated Wang word processor.

If you're already a Wang user or you have purchasing responsibilities for a company that's standardized on the Wang, then probably the most important thing you need to know about *MultiMate Advantage* is that it faithfully re-creates the Wang word processing environment with only some minor exceptions. For example, the product does not offer the Wang's file library services (a filing-cabinet-style sys-



EXPANDED FACT FILE

MultiMate Advantage 3.50

Multimate International Corp.
52 Oakland Ave.
East Hartford, CT 06108-9911
(203) 522-2116

List Price: \$595



Requires: 320K RAM, DOS 2.0 or later, two disk drives.

CIRCLE 689 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JC, JN, JM
Margins: LM, I, RM, L56
Line Spacing: LS-2, L2, LF, WC, OC
Character Formats: VP, PS, PW, BO, IT, UL, SP, SB, ST, SC, CB, IBM, CT
Page Formats: LIT, LIT, GL, GR, LP, L50, HT, HL, FT, FL, PL-25, PW-15.5
Tabulation Format: TL, TC, DC
Header/Footer: SL, UM, OF, UP, AN, RN, PA, PR, THF

EDITING SCREEN DISPLAYS

Nontext Display: RC, CC, LN, PN, DF
Text Display: SL-22, SC-80, WA

TEXT ENTRY AND EDITING

Typing Editing: FC, FT, ED, DA, CA
Character Features: SH, HB
Cursor Movement: CK, NC, NL, NW, NP, NSC, SBP, BL, BP, BPC, SPO, SD, SL, SR, JP, JM

Block Editing Tools: HL, AB, CH, WD, LN, SE, PH, CO, PG, MV, CP, DE, AR, DF, TM, HF

Search and Replace: FO, CS, CI, WW, FS, FR, VV

Undo Utility: NA

PRINTER SUPPORT

NP-289, UP, PF, SF-3, EO, QU, PW, PS, OF

FILE HANDLING

Document File Strategy: PG, DF, CI, CS, OTH, DS-128000 KBYTE

Document Saving: AB, DB, MS, EA, PL
DOS Facilities: DR, CDK, ADK, CDR
File Import and Export: IM, IAP, IBM, IOH, EAL, ERM, EOTH

SPECIAL FEATURES

Spelling Checker: WD-280000, UG, UD, SW, DB, ED, IC, BG, MR, IM, AD, MM, QK
Other: KM, CK, CS, MM, MMD, PF, FF, AT, GR, FL, SC, OG, DV, TV, TM, MS, MT

MultiMate Advantage displays underlined text in a contrasting color. For Boldfacing, Italicizing, Underlining, and Justification work, the program scans paired markers visible on screen. The 'u' and 'a' at the lower right corner of the screen indicate the status of the shift and marker keys.

MultiMate Advantage, a friendlier version of the classic MultiMate word processor, shows many of the characteristics of its predecessor.

MULTIMATE ADVANTAGE 3.50

MultiMate is probably the classic example of a microcomputer word processor aimed specifically at corporate America. It was originally built on a single design precept: emulate the Wang, corporate America's favorite dedicated word processing machine. As the product has matured, it has acquired more and more features for automating routine business chores, such as the production of boilerplate text and form letters. At the same time it has kept its conceptual link to the world of the typewriter by staying steadfastly page oriented.

MultiMate's latest version, *MultiMate Advantage 3.50*, incorporates two major enhancements in the area of data management, plus a variety of more modest word

tem in which groups of related documents can reside under common hats), and its Execute key (F10) isn't implemented in exactly the same way as Wang's.

The latter difference can cause confusion for Wang-trained users. Where the Wang would have you terminate an action by pressing Execute, *MultiMate Advantage* sometimes has you press once more the key that initiated the action. To do a search, for example, you press F6, type your search string, and then press F6 again. In certain other cases—moves and copies, for example—you may terminate an action either by pressing the key that started it or by pressing F10. In still other cases *MultiMate Advantage* lets you terminate a command by pressing either F10 or Return, and in some other cases the program insists that you press F10. All this inconsistency is exasperating, but *MultiMate International* says it's moving *MultiMate* in the direction of using F10 to terminate all commands.

BETTER DOCUMENT SCREENS Although it doesn't offer Wang's library services, *MultiMate Advantage* does support DOS pathnames to a depth of one level below the current directory. Users with hard disks can therefore emulate Wang document libraries by means of DOS sub-directories. To further assist file organization, *MultiMate Advantage* preserves—in fact, it improves on—Wang's document summary screens. In *MultiMate Advantage* these screens have fields for keywords and comments describing the contents of the document, as well as the document's author, word processing operator, and addressee. *MultiMate Advantage* adds some information to the summary as well: number of pages, date of creation, date of last edit, and the amount of time and the number of keystrokes expended on the document, both overall and during the last edit. To help you find files and keep your disks in order, *MultiMate Advantage* lets you search on any field in the document summary screen. You can also print the summary screens for all documents in a given disk directory.

If you're coming to *MultiMate Advantage* without Wang experience, you'll be struck by two aspects of the program's style: its "zillion-function-key" approach

to commands, and its page-oriented document file management.

MultiMate Advantage implements all 40 of the PC's function keys (F1 through F10 in normal, Shift, Alt, and Ctrl states), as well as 36 combinations of the Alt key and the alphabet keys. The advantage of this approach is that once you know what you're doing, you can move through command sequences relatively quickly, without having to wait for menus to appear. The disadvantage, of course, is that you have so many separate commands to learn.

MultiMate has clearly tried to organize the function keys into meaningful patterns and to choose Alt-key combinations with mnemonic value, but there are some real stretchers here: Alt-N (eNhaNced print)

■ MultiMate Advantage 3.50 incorporates major database and word processing enhancements—its chief selling point, however, remains its "Wangishness."

and Alt-G (case siGnificance), for example, may not roll right off your fingertips the first day you use the program. To help you cope with the command layout, *MultiMate* supplies a color-coded keyboard map, a set of keytop stickers, and—most important—a context-relevant help facility that includes a full screen of information about each keyboard command.

PAGE ORIENTATION You'll probably either love or hate *MultiMate Advantage*'s page orientation, depending on the kind of work you do. *MultiMate Advantage* keeps only one "logical" page in memory at any time. The expectation is that as you work, you will decide when to move from page *x* to page *y* and will issue a page break command, much as you would roll one sheet of

paper out of a typewriter and roll in another. When you issue that command, *MultiMate Advantage* tucks your page away on disk and brings up a fresh blank screen (or the next page, if you're editing an existing document). With the current version of the program, you can ask *MultiMate Advantage* to break pages for you at specified line lengths as you work, but the program's policy of keeping only one page visible at any time remains in force.

If you make changes to a document that affect its length, you'll probably want to issue a repaginate command, in response to which *MultiMate Advantage* will rebreak your document, taking into account whether or not you've asked for widow and orphan control. If you have material that must appear at the top of a page, you may take advantage of *MultiMate Advantage*'s required page break. But, oddly enough, there's no provision for conditional page breaks, which would allow you to say "Break here if you're already deeper than line *x*; otherwise go on."

The principal advantage of page orientation is that it minimizes the risk of data loss; if the power goes down, you lose at most the current page. Unfortunately, however, because the program saves each time it crosses a page boundary, if you issue a global replace command and later repent, you may wind up having to redo some of your work (and with the case-sensitivity toggle tied to an obscure Alt character, bungling such an operation is not hard to do). *MultiMate Advantage* does let you make automatic backups, but you have to alter a default setting to do so.

Another disadvantage of page orientation, which may affect writers more than clerical workers, is loss of continuity. You never get to see the bottom of one page and the top of another at the same time. You can minimize this problem, however, by choosing long "logical" page lengths (as long as 150 lines per page, depending on the amount of white space in your document) and then repaginating just before you print.

The *MultiMate Advantage* documentation claims that page orientation makes word processing easier, but it offers no support for that claim. The truth would appear to be this: Many dedicated word processing machines were designed to be



page oriented to minimize the conceptual leap between the typewriter and the computer. Programs like *MultiMate* that mimic the earlier technology have preserved the page approach, even though it seems of less value now than in the heyday of the standalone word processor.

If you're not comfortable with page orientation, *MultiMate Advantage* isn't for you. If you are, and if you're willing to put in a little more startup time than you might need with more menu-styled word processors, you'll find much to like in the program. It offers a lot of extras, in addition to the "standard" input and editing features. Among the notable extras are a macro facility that allows pauses for operator entries, column manipulation, column and row math functions, line drawing for organization charts, table of contents and footnote generation, and alternative keyboards for input of foreign or graphics characters.

MultiMate International, moreover, seems to have made intelligent choices in balancing the security/efficiency tradeoff. The program does not, for example, burden you with gratuitous confirmation prompts. One could wish for snappier screen update (particularly in the program's new optional push-insert mode) and a few other things, but, on the whole, it's not hard to understand why the *MultiMate* product line has become a favorite in the business world.

—Craig Stinson

OFFICEWRITER 3.5

The design of *OfficeWriter 3.5* from Office Solutions was inspired by the Wang dedicated word processor. The package is thus best suited for corporations that want to introduce IBM PCs into Wang-dominated offices without sacrificing previous clerical training.

Getting started with *OfficeWriter* is easy. The tutorial is simply an ordinary document that you edit, read, and experiment with: It bravely lets you try out the features on itself—something like a supine patient instructing an intern surgeon. Although the tutorial at first seems flakey, it actually works quite well. You're in total

control, and yet you're also learning.

For further assistance *OfficeWriter* has a function key template that defines all function and Shift-function commands. A handy "reference ruler" defines the more advanced key sequences.

KEY CONSISTENCY *OfficeWriter's* ease of operation derives largely from the consistent use of the gray Plus key (at the right of the keyboard) as a "Go" key. I learned a simple rule: When in doubt, press Go. It almost always worked.

For instance, block moves and copies require pressing a function key, blocking the text, pressing Go, moving the cursor to the destination, and pressing Go again. You can block text either by manually operating the cursor with the cursor keys and moving by words, sentences, and paragraphs, or by pressing a letter, number,

symbol, or special character (tab, paragraph end) and jumping to the point to which you want to extend the block.

Deletion works the same way. You delete text by pressing the Del key, blocking the text, and hitting Go. Strangely enough, *OfficeWriter* has no unblocked deletion commands. As a typist who often types extraneous characters, I quickly got into the habit of hitting Del and Go quickly in succession for a one-character delete.

OfficeWriter also implements Wang's "drop-down insert," which is fine for secretaries but hated by writers. (Version 4 of *OfficeWriter* will allow push-ahead insert, one of the necessary changes if the program is going to make it into the executive suite.)

OfficeWriter is page oriented, but since it keeps the entire document in memory during editing, moving from one page to



OfficeWriter 3.5
Office Solutions Inc.
2802 Coho St.
Madison, WI 53713
(608) 274-5047
(800) 228-0747

EXPANDED FACT FILE



List Price: \$445
pricing checker included



Requires: 256K RAM, DOS 2.0 or later, two-disk drives.
CIRCLE 682 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, IN, JM
Margins: LM:1, RM:156
Line Spacing: LS:3, LF, WC, OC
Character Formats: VP, PS, BO, UL, SP, SB, ST, SC, CB, ASC, CT
Page Formats: L:LT, GL, HT, FT, MP
Tabulation Format: TL, TC
Header/Footer: HL, OF, UP, AN, RN, PA, THF
Multiple Columns: TC, NC, CP:3, UC

EDITING SCREEN DISPLAYS

Nonexit Display: CC, LN, PN, DF
Text Display: SL:24, SC:80, WA

TEXT ENTRY AND EDITING

Typing/Editing: FC, DA
Character Features: SH, HB
Cursor Movement: CK, SD, NC, NL, NW, NSC, BL, BS, BP, BSC, BPG, SU, SD, SL, SR, JL, JP
Block Editing Tools: HL, AB, MV, CP, DE, FC, AR, DF, HF, FN
Search and Replace: FO, CI, CP, WW, AS, FS, FR, VY

Undo Utility: UD

PRINTER SUPPORT

NP:44, PT, ES, EO, QU, PS, OF

FILE HANDLING

Document File Strategy: FD, DF, CI, OTH, DS:240
PAGES

Document Saving: NB, MS, EN, ER, EL
DOS Facilities: DR, CDK, ADK, SDR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Spelling Checker: WD:8000, UG, SW, ED, IC, BG, MR, IM, AD, QK
Others: CS, MM, MMD, PP, FE, DV

File, Doc, Dr, Strnd, Page, 1, Lin, 25, Gdt, 30, Select Alternative Menu
Other Technology from Wang and Director is happy to make this time save proposal to be. We have been in the development of this time save for some time now. This, and our own expertise in the operation of the time save will allow the time save to be the most of our happy customers. We now have a well fed and trained team in a happy state, and other Technology from Wang is happy times happy.

The cost of our proposal is based on the volume and

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- 66. Select Alternative Menu
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- 96. Select Alternative Menu
- 97. Select Alternative Menu
- 98. Select Alternative Menu
- 99. Select Alternative Menu
- 100. Select Alternative Menu

OfficeWriter's OfficeSpeller spelling checker includes in-context display, a custom dictionary, and a variety of suggested corrections.

another is a trivial problem. Memory residence limits the size of documents, however. Under PC-DOS 2.0 and later, the largest document will be your PC's memory size less 160K. With complete memory residence you also pay another price: the possibility of losing all your current edits (instead of just the page edits) when the PC gremlins strike. Frequently pressing *OfficeWriter's* "Save Without Exit" key will protect you against total disaster.

Although you can't directly type in the IBM extended character set using the Alt key and the number pad, you may define 26 special characters that you can trigger with the Ctrl key and a letter. For printing purposes each of these 26 definitions can send a three-character ASCII code to the printer, which gives you space for additional printer control codes you may want.

OfficeWriter includes a facility for boilerplate text and implements complete mail-merging capabilities. At print time you can fill out a screen for selective mail-merge printing based on logical operators. Other advanced features include footnote handling and printing documents in two or three columns per page.

One strange omission is a specified top margin for printing, except when you're using a sheet feeder. You can roll the paper up before you begin, but that's a little too "low tech" for me.

ASCII CONVERSION Converting ASCII files to *OfficeWriter* files is a problem. If you start with a file where all lines within a paragraph are terminated by carriage returns, you'll have to remove the carriage returns after conversion. You're better off if you start off with an ASCII file with single-line paragraphs, set the *OfficeWriter* line length to the maximum 156 characters for conversion purposes, then later change the right margin within *OfficeWriter* and just clean up the inserted carriage returns for paragraphs longer than 156 characters.

Converting an ASCII database file to a mail-merge data file is more flexible, however. All you need is a format where the fields are quoted and separated by commas or one with fixed-length fields.

The enhancements that *Office Solutions* has scheduled for *OfficeWriter 4.0* (which should be available by the time you

read this) include keyboard macros, row and column math, double underlining, push-ahead insert (hurray!), deleting within drop-down insert, destructive backspace, font specifications for laser printers, and separate editable printer drivers.

OfficeWriter is often compared with *MultiMate*, the better-known Wang-inspired PC word processor. Although the two programs were independently developed, they obviously share some similarities in appearance and structure. The differences, however, are significant. *OfficeWriter* is faster than *MultiMate* during editing because it keeps the entire document in memory; it's slower at the main opening menu because of its greater use of overlay files. *OfficeWriter's* repagination is faster than *MultiMate's*, but it has to load an overlay file to do it; so for a short file the difference is not quite as dramatic as it might be.

The real difference is in the command structure. *OfficeWriter* is less command-laden than *MultiMate*. This may sound like a deficiency, but it's really not. For instance, *MultiMate* defines four Alt-function keys to highlight and block words, lines, sentences, and paragraphs. But *OfficeWriter's* highlighting techniques are more consistently defined, so it's simpler

■ If you need a Wang-like word processor, you owe yourself a close look at *OfficeWriter*.

to remember which Alt-function keys do what. *OfficeWriter* is easier to use simply because it's more cleanly designed.

The problems with *OfficeWriter* derive from the Wang system that it emulates. Some of these problems should be fixed with Version 4.0, which should be out by the time you read this. That's important because I don't see the wisdom of introducing into offices a word processing system that cannot be used with equal efficiency by both the secretaries typing the drafts and the managers and the executives

writing them. I'm glad to see that *Office Solutions* is attempting to broaden the appeal of its programs to fulfill that requirement.

If you need a Wang-like PC word processor—and many corporations do—then you owe it to yourself to give *OfficeWriter* a close look. Some large corporations have already chosen it over the competition. Particularly with the enhancements promised with Version 4.0, I believe they have made the right choice.—Charles Petzold

PEACHTEXT 5000 2.11

The word processing part of the *PeachText 5000 2.11* package—which also includes the *Random House Electronic Thesaurus*, a 20,000-word spelling checker, a list manager, and the *PeachCalc Electronic Spreadsheet*—has gone through several revisions and corporate owners since it began life as *Magic Wand* in the days of 8-bit CP/M machines. The product is now the property of Intelligent Systems, which also owns Quadram. Throughout its corporate vicissitudes, *PeachText* has remained a medium-performance, rather easy-to-learn word processor. Its limitations make it more suited to personal use in a home office than to a high-pressure office environment.

Upon entering the program, you first choose from a menu that offers such options as Edit, Print, and Display Directory. When you choose Edit, the next stop is the "edit status" menu, where you set the display-line length and any tabs desired. (Except when you're creating new text, tabs affect only cursor motion; the line length you see on the screen has no effect on the ultimate formatted printout.) One more carriage return brings you to your text or to an unadorned, unformatted 24-line screen.

You may enter commands such as LM10, SP2 (left margin 10, double spacing) globally at print time, or you may embed them in text so that you can change them as you go along. The program boots in overwrite mode but helpfully provides both character insert and drop-down insert capabilities.



CHARACTER ASSASSINATION All commands are logically named with full words or obvious abbreviations; you enter them preceded by a backslash. The program "steals" a number of additional ASCII characters, however, as default "recognition" characters that are unavailable for printing: the ampersand (ghost hyphen), the underscore (begin/end underline), the at sign (boldface), and the greater than and less than symbols (subscript/superscript). You can change the defaults (permanently, if you want to set up an automatically loaded .DFT file), but for every file you'll have to do without either the characters or the functions they normally control. This is less a problem with original text than with imported text.

Straightening out the test project assignment highlighted this last difficulty. One word processor I tried could strip out

every one of 15 unwanted "Paragraph XX [CR]" headings with a single pass; another, more typical one took two passes because of the difference between single- and double-digit numbers. *PeachText* required each line to be deleted individually, because only the F9 key (line delete) could remove the carriage returns. Working with files that insert a carriage return with every line would be a monumental chore. Moreover, each time a block move, block delete, or block copy was required, I had to push Esc to go back to the "edit status" screen, thus losing eye contact with the material.

PeachText does allow you to save part of the text as a separate file; you can also import an external file, one screenful at a time. The program lacks anything like a second window for cross-editing two files, however. While the program can work

with different disk drives, it has no multi-directory capabilities and can't run DOS programs from within itself. Indeed, the adaptation of the program for the IBM PC seems rather incomplete. While function keys and cursor arrow keys are used, for example, it seemed odd to me to use F1 and F2 for backward and forward page scrolling while leaving the PgUp and PgDn keys unassigned.

PeachText lacks such niceties as decimal or right-aligned tabs and backward search capabilities, but it is not designed for users who would likely need them. The fact that it creates an automatic backup copy of anything you edit, which you can easily rename and use as a new starting point, is far more valuable.

Moreover, *PeachText*'s case-sensitive search-and-replace operation was respectably fast (3 seconds to change every *a* into a *z* in our 3,817-byte file), and its print status screen made adjusting top and bottom paper margins a snap. Centering and flush left or right justification of either individual lines or the whole text are similarly easy.

PRINTER SUPPORT Furthermore, *PeachText* supplies excellent drivers for a number of daisy wheel and dot matrix printers to implement bidirectional proportional spacing, sub- and superscripting, and characters per inch and lines per inch within the software. You can send other printers' appropriate escape sequences from within *PeachText* by using its \OUT command. The program also gives you broken or solid underlining, variable-strike boldfacing, and special printing effects such as kerning (for strikethroughs or creating diphthongs), as well as variable vertical and horizontal pitch.

The *PeachText* list manager worked better than adequately for our small mail-merge test program and would be easy to use for mailing labels and Christmas card or client contact lists. The spelling checker, though it caught all the errors in our test samples, proved no candidate for high marks on the College Boards, stumbling over such words as *birch*, *cutbacks*, *evidenced*, *expertise*, *moth*, *pruning*, and *trimmed*.

The tutorial supplied with the program is superb for the beginner; it starts you off

EXPANDED FACT FILE



PeachText 5000 2.11

Peachtree Software Inc.
4355 International Blvd.
Nurture, CA 94093
(800) 247-3224

List Price: \$295 for complete 5000 system



Requires: 128K RAM, one disk drive for word processor only, two disk drives for complete 5000 system.

CIRCLE 681 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN, JM
 Margins: LM:0, RM:132, AL:AO
 Line Spacing: LS:1-6, LF:WC, OC
 Character Formats: VP, PS, AP, PW, BO, UL, SP,
 SB, ST, SC, CB, ASC, CT

Page Format: LIT, LLB, GL, GR, LP:48, HT, HL,
HR, FB, FL, FR, MP
Tabulation Format: TL, FC
Header/Footer: SL, UM, OF, UP, AN, RN, PA.

Multiple Column: TC, NC, CP:66, UC

EDITING SCREEN DISPLAYS

Text Display: SL-24

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT

Deletion Format: CD, WA, LE

[illegible]

"I am glad to be here in Philadelphia. The friends and I appreciate the hospitality and the warm welcome during my stay. We used the circumstances here which in time were more favorable.

"Let us go on to consider settling the papers as earlier have today. We have in years ago an interesting incident found on this continent a few years ago. We are dedicated to the proposition that all men are made equal."

But we are engaged in a real big civil war, testing whether that nation looks up and realizes like that can endure for very long. We are next to a real big battlefront in that war. We have come to designate some of that kind as a moment for them who have seen their country that cannot hold line. It is altogether fitting and proper that we should do this, and I so wish it.

PeachText 5000's text-editing screen is uncluttered by corporate word processor standards, containing nothing but the manuscript itself.

in word processing by taking you a step at a time through a recreation of Lincoln's Gettysburg Address from an apocryphal first draft. I found the reference manual clear and completely adequate, although understandably terse.


In sum, then, while it's stretching things to call *PeachText 5000* a complete office productivity system, the package does give the home user a word processor that he can easily learn to live with, together with a good deal of related ancillary software, all within the one system. For a number of people it's more than adequate. —Craig L. Stark

PROFESSIONAL QWERTY WORD PROCESSOR 3H

Professional QWERTY Word Processor 3H is easy to learn, easy to use, impressively fast in most operations, and filled with enough features to handle most sophisticated word processing needs. Priced at just \$149, the program is marketed as the "professional" (read: secretarial) companion to HFK Software Inc.'s *Personal QWERTY*. (*Personal QWERTY* is reviewed elsewhere in this issue.)

Professional QWERTY just squeaks into the corporate category—partly because of its intended market and partly because of its underlying design. The program tries hard to act like a typewriter, making the transition from typewriter to word processing nearly painless.


The *Professional QWERTY* approach to emulating a typewriter is unusual, if not unique, in word processing programs. When editing a file, the program shows the current margins and tabs in a ruler line, as do many WYSIWYG programs. Unlike most programs, however, the line is at the bottom of the screen. And instead of letting the cursor move anywhere on the screen, the program puts a large, upside down, U-shaped position indicator just above the line. The result looks remarkably like the position and margin indicator that sits just above the keyboard on the IBM Selectric typewriter.



Professional QWERTY Word Processor 3H
HFK Software Inc.
Old Danbury Rd
Danbury, NH 03230
(603) 254-0059

EXPANDED FACT FILE

List Price: \$149 for floppy disk version, \$164 for fixed disk version



Requires: 128K RAM, DOS 2.1 or Later, one disk drive.
CIRCLE 690 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Format: JL, JM
Margins: LM:1, RM:150, AL, AO
Line Spacing: LS:0-9, LF, WC, OC
Character Format: VP, PW, BO, IT, UL, SP, SB, ST, CB, ASC

Page Format: GL, GR, HL, HR, FL, FR, PL:1, PW:999, MP

Tabulation Format: TL
Header/Footer: SL, UM, OF, UP, AN, RN, PA
Multiple Columns: NC, UC, OW

EDITING SCREEN DISPLAYS
Notext Display: RC, CC, LN, PN, DF
Text Display: SL:20, SC:79, WA

TEXT ENTRY AND EDITING
Typing/Editing: FC, IT, ID, BA
Deletion Format: CD, WE, LE
Character Format: NH, SH, HB
Cursor Movement: CC, NL, NW, NSC, BD, SU, SD, CK

Block Editing Tools: UM, AB, CP, DE, AR, DF
Search and Replace: FO, BK, CI, AS, FS, FR

PRINTER SUPPORT

NP:15, PT, CH, PS

FILE HANDLING

Document File Strategy: FD, DF, CT, ASC, DS:48

Document Savings: NB, EN, ER, EA, EL
DOS Facilities: DR, MU, CDK, ADK, SDR
File Import and Export: IAP, EAP

SPECIAL FEATURES

Other: MM, MMD



A Professional QWERTY editing screen can be divided into three windows. Note the typewriter-like position indicator at the bottom of the screen.

The program takes typewriter emulation one step further by treating the document like a piece of paper that has to be rolled up and down to type at any given spot on the page. Rather than moving the position indicator to the text, you have to move the text to the position indicator (I hesitate to call it a cursor). The effect is so much like using a typewriter that I found myself fighting an urge to reach forward with my right hand to pull out the paper. The program, of course, provides commands for scrolling the text up and down.

LOGICAL COMMANDS *Professional QWERTY*'s command structure is remarkably simple, if not elegant.

Most commands are initiated by the function keys. This is not unusual, but in most programs that depend on function keys, the commands on each key are arbitrary, making them harder to learn than

Ctrl key or Alt key mnemonics. The commands in *Professional QWERTY*, however, are easy to learn because they follow a logical order.

Briefly, the unshifted function keys work in pairs: F1 and F2 move forward and backward by character, F3 and F4 by word, and so forth. In each case, the left key in the pair moves backward, while the right key moves forward. Commands for shifted function keys are almost all related to the unshifted commands in a logical way: Where F10 starts a search, Shift-F10 starts a search and replace.

The PC's cursor keypad is reserved for character enhancements, including bold-face, underlining, subscripts, and superscripts. The functions for these nine keys are mapped out in a small three-by-three matrix that sits at the top right-hand corner of the screen and shows the status of each function.



Margins and tabs are set by ruler lines that you type in as text. Other print formatting is done through print commands. These are similar to the dot commands in *WordStar*, but they are far less intimidating because of the way they are handled.

Professional QWERTY reserves the unshifted print-screen key (the Asterisk) for initiating its format commands. Like dot commands, the symbol must be in the first column of the line, but unlike dot commands, the command symbol is automatically shifted out to the first screen column, where it is easy to spot and change later if necessary. (Margins are normally shown on-screen, and column 0 is reserved for the command symbol in any case.)

Notably missing from the print commands is control over the top and bottom margins. *Professional QWERTY* can control the total amount of the top and bottom margin, but the only way to assign the blank space to the top or bottom is by adjusting the paper in the printer. If printing starts with the top edge of the paper at the printhead, all the free space winds up as a bottom margin. Add a header, and *Professional QWERTY* subtracts three lines from the body of the text and assigns it to a header margin.

Professional QWERTY also has its share of advanced formatting features, including automatic paragraph indent and outdent. It even has automatic widow and orphan control, but that feature only works if you add an extra line between paragraphs.

The program's use of color is definitely in the plus column. *Professional QWERTY* has ten different color combinations built in. To choose among them, you only need to go to the main menu and hit function keys until you find one you like. This is particularly useful when tired eyes need a change of view after staring at the screen for several hours.

Another plus is a sophisticated mail-merge feature. The program can use comma-delimited data files, which means it can work with *dBASE II*, *dBASE III*, and a wide range of other database programs. It can also read data files in its own format, which is much easier than comma-delimited format to create and maintain as a text file.

There is no spelling checker in *Profes-*

sional *QWERTY*, but because it produces straight ASCII files, you can use just about any standalone spelling checker with it.

TYPEWRITER EMULATION For me, at least, the typewriter emulation in *Professional QWERTY* makes the program much better suited for typing than for creative writing. In writing and editing this review, I found myself continually scrolling up and down when making changes because I needed to see the flow of information when adding or deleting words.

The typewriter emulation also interferes with such things as aligning columns properly. Ruler lines and tabs couldn't be easier to create or change, but you can't see the effects without scrolling the screen up and down.

One potentially serious problem with this program is printer support. Each distribution disk contains only one printer driver, so that if you buy a new printer, you need a new copy of the program.

HFK Software has defused this difficul-

■ **QWERTY is so much like using a typewriter I had an urge to reach forward and pull out the paper.**

ty by providing new copies to registered users free of charge. As of this writing, however, the company provides only 15 different drivers, which restricts your choice of printers. On the other hand, this problem will continue to grow less important as more and more printer manufacturers standardize on IBM, Epson, Diablo, and Qume control codes.

Be aware also that *Professional QWERTY* is weak in two important features for the corporate market: file management and safety in saving files. File management is essentially nonexistent. Not only is there no document library, but the program sends you to DOS for such tasks as copying and renaming files.

The program does a little better on file saving. There is no automatic save function or reminder that it is time to save, but if you try leaving a file, *Professional QWERTY* asks if you want to save it. And if you try leaving the program, it asks if it is okay to delete everything in memory.

As a corporate word processor, *Professional QWERTY* is certainly hurt by these two weaknesses, but it is not necessarily out of contention. At \$149, the program offers a great many features for the price. As a low-end corporate word processor aimed at the secretary who's afraid to touch anything but a typewriter, it's a credible product.—M. David Stone

SAMNA WORD III 3.0

As I approached *SAMNA Word III 3.0* for a test drive, my first sensation was the pleasure of anticipation. A quick look at the sticker told me that this was no stripped-down basic transportation. It listed glossaries, macros, soft hyphenation, an undo facility for resurrecting deletions, alternate keyboards, windowing, line and box drawing, column formats, index and table of contents generation, automatic section numbering and renumbering, a math mode, a Fold command (equivalent to a spreadsheet's titles command) for use in wide tabular documents, and more, all as standard equipment. *SAMNA Word III* appeared to be everything I'd expected on a classy vehicle and even included columnar block moves; mail merge; built-in cursor jumps forward or backward by word, sentence, line, paragraph, screen, page, file, or to the character of my choice; numeric tabs as well as regular ones; and on and on.

As I pulled out of the lot, I noticed that someone had done some good thinking about the layout of the controls and that an effort had been made to give me an accurate and informative display. However, when I got onto the freeway, I immediately noticed problems. The powerful motor seemed unable to get into high gear.

As I "drove" it along, I discovered that *SAMNA Word III* is a program with a lot of features but a definite point of view that



margins on a seven-page document, for example, can take as long as 3 minutes. Watching *SAMNA Word III* carry out such a large-scale reformatting job—or even a relatively simple block move or copy—is like taking a front-row seat at the ballet. The beauty of the performance is not enhanced by watching the dancers perspire.

In its effort to be helpful, *SAMNA Word III* tends to get in your way. When you check the spelling of a document, for example, the program insists on consulting its dictionary for alternative spellings whenever it comes to a word it doesn't know. This means you have to wait 5 or 10 seconds for each word, even when all you've done is commit an obvious two-character transposition. The dictionary itself is excellent, however, and the facility for creating supplemental user dictionaries is flexible enough to let you specify capitalization as well as spelling.

Another "helpful" stumbling block is *SAMNA Word III*'s requirement for confirmation prompts. When you only want to insert a section mark character that you can delete as easily as any other character, why should you have to type Return as well? (A spokesman for Samna Corp. said the apparently gratuitous confirmation prompts were included for the sake of "physical" consistency. Without them, you might insert extraneous carriage return characters into your documents because most commands in *SAMNA Word III* are terminated by the Return key.)

The current version of *SAMNA Word III*, which the company is calling its "turbo" model, is said to be much faster than its predecessors. That's because a number of critical routines have been converted from C to assembly language. Not having seen the earlier versions, I can say only that the program is still slow, as a result of deliberate design choices, however, not of shoddy programming code.

The problem with *SAMNA Word III* is not that its design objectives are unsound or unworthy, but that it doesn't achieve those objectives. The program is throttled in ways that serve no purpose. Its clumsiness and slowness are all the more irritating because the program could be powerful. Using it is like driving a flashy sports car, but one with a transmission made out of marshmallows. —Craig Stinson

WORD RESULT 2.0

Word Result 2.0 from Handic Software is Sweden's answer to the international corporate word processing conundrum. It is an extremely powerful program replete with some very sophisticated formatting, mail merge, and macro capabilities. The program is also multilingual; you can select among ten different "tongues," and the word processor will present all prompts and commands in your chosen language. Word Result supports a mind-boggling number of IBM-compatible foreign keyboard and printer configurations.

While Word Result may answer the prayers of international power users, the price for this answer is significant. Word

Result is not an intuitively easy word processor to learn or master, and the real power of the program is often hidden in obscurely named and poorly documented functions.

Once you've installed Word Result for your language, keyboard, and printer configurations (a nicely prompted process), you access the Word Result program from a Result Manager module. The module controls Word Result, the spreadsheet Calc Result, foreign language and printer and keyboard selections, and all DOS functions including disk formatting.

Word Result can only use disks formatted by the Result Manager. Consequently, to read in an ASCII file, you must first copy the file to a Word Result data disk using a .TXT extension and then retrieve the file using a special Get ASCII File com-



EXPANDED FACT FILE

Word Result 2.0

Handic Software AB
400 Paterson Plank Rd.
Carlisle, NJ 07072
(201) 933-1455

Requires: 128K RAM (256K RAM for integrated version), two disk drives.

CIRCLE 678 ON READER SERVICE CARD

List Price: \$295
(\$495 integrated
with Calc Result)



FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN
Margins: LM, RM, LM, RM, AL, AO
Line Spacing: LF, SB, SA, KP, WC, OC
Character Formats: VP, PS, AP, PW, BO, UL, SP, SB, ST, SC, CB, ASC, CT
Page Formats: LIT, LLT, LLLB, GL, GR, HT, FT, PL, 265, PW: 265
Tabulation Format: TL
Header/Footer: SL, OF, UP, AN, RN, PA, THF

EDITING SCREEN DISPLAYS

Nontext Display: RC, CC, LN, PN
Text Display: SL, 19, SC, 172, WA, FI

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, IM
Deletion Formats: CD, WA, LA, SA, PA, PGA, DA, DE

Character Features: HH, SH, HB

Cursor Movement: CM, CK, NC, NL, NW, NSC, BL, BSC, SU, SD, SL, SR, JP, JM
Block Editing Tools: HL, AB, LN, SE, PH, PG, MV, CP, DE, AR, DF, TM, HF, FN
Search and Replace: FO, CI, CP, WW, AS, WS, WR, VY

PRINTER SUPPORT

NP: 120, UP, CH, PW

FILE HANDLING

Document File Strategies: FD, LM, DF, CI, OTH, DS: 170 BYTES

Document Saving: MS, AT, EN, EA, IN

DOS Facilities: MU, ADK, ADR
File Import and Export: IM, NIA, EAP

SPECIAL FEATURES

Other: KM, CK, CS, MM, MMD, GR, FL, DV, TV, HA



Word Result's busy text-editing screen includes 20 commands that are invoked with either the function keys or Shift-function key combinations.

mand. Since this was not documented at all, it took me over 2 weeks to import the ASCII file required for *PC Magazine's* tests.

Word Result's main menu is a very busy place. A series of 20 commands invoked with either the function or Shift-function key occupies the bottom portion of the screen. There are 20 command verbs such as GoTo, Change, Modify, Create, Move, and Set that activate a dynamic display of appropriate nouns.

The corresponding function keys for these commands are not displayed on-screen. You must hold down the Ctrl key to find out the names of the function keys. To indicate your choice between the Shift-function and function commands, the display includes a faint gray arrow that points to the selection—when you press the Shift key, the arrow jumps to the alternate selection.

The *Word Result* menu design is problematic. To begin with (at least in the English language portion of the processor), the command verbs are often quite similar in meaning. For example, the command verbs that appear on the main menu (Change and Modify, Create and Set, Display and Get, and Remove and Erase) are close enough in meaning to cause serious confusion. It is never clear which verb to select until you invoke the noun submenu, and sometimes not even then. You get the feeling *Handic* worked to maximize the number of commands offered by *Word Result*, and somehow equated these numbers with power. The main menu verb selections should be reorganized and consolidated.

Also, the program's menu design does not create a strong visual picture. You've got to hit the Ctrl key merely to display the function key numbers, then release the Ctrl key, and peer at a faint gray arrow to determine whether to use the function or Shift-function screen. It's visually exhausting. Submenus do not typically offer the main menu's full 20 choices, and there is no apparent reason why certain commands appear as Shift-function commands and others as function-key commands.

POWERFUL DESPITE THE

MENUS Once you've resigned yourself to the less-than-satisfactory command

structure, you'll find that *Word Result* can do a great many things. A thorough document information page is created for each document. It contains 40 parameters that can be customized, offering fine control over hyphenation, orphans and widows, page numbering and headers, paragraph indents, and document creation information including passwords, group identification, and dates of modification.

Word Result supports just about every word processing feature I've ever heard of, but its methods are questionable. For example, the program includes a full gamut of text justifications, but to center a single line of text you select Justify-Text Center and the program centers everything below the cursor. Next you "uncenter" everything that appears below the line you want centered, by reselecting the Justify-Text Left command. That's a considerable number of steps to center an individual line.

Setting, creating, and changing margins are not happy processes either. You can manipulate margins with the Move, Restore, or Set commands, or on the document information page, though for the life of me I can't distinguish between the Move and Set commands.

Block moves are handled strangely. You begin a block and then you point or highlight the text, pressing Return to indicate when you are through. Once you have completed blocking the text, the highlighting mysteriously vanishes. This isn't too awful if you work with your block immediately. But if, like me, you like to let a block sit while you peruse the rest of your document, you will find the ease of the disappearing highlights unacceptable.

In insert mode (the default mode), carriage returns are not inserted. Instead, a carriage return only moves the cursor down a line without inserting anything. As a result, if you are trying to separate two sentences that appear on a single line into two separate paragraphs, you can't simply insert a carriage return. After a week of hunting (this time even calls to the authors in Sweden didn't provide the answer), I discovered a Split-Paragraph command that will break up two sentences on the same line and put them into paragraphs.

After deleting and moving blocks of text, you must hit a Restore Paragraph

command to reformat. (Incidentally, this command was not readily apparent from the documentation and accounted for one of my phone calls to Sweden.) You are prohibited from removing extraneous carriage returns manually.

Find and Change (the equivalent of search and replace) work only one change at a time (pressing Alt-F1 will repeat the search) or on the global level. *Word Result's* search function is not case sensitive, but you may search for wildcards.

Incidentally, the search-and-replace functions are only one minute part of the Change and Find verbs. For example you can Change character (transpose two characters), disk, background color, daisy wheel, and printer. This is a different procedure than most American word processors use, where each command has one associated action.

Word Result uses markers to embed formatting codes, and it is possible to display, search for, remove, and restore these markers. This process gets tricky since a line that is formatted to be centered, underlined, and boldfaced can have a great deal of coded marker information. The meanings of the codes, however, are not documented at all.

PRINTER CONTROL In addition to supporting boldface, underlining, subscripts, and superscripts, *Word Result* lets you enter commands to print double width, condensed, reverse print, overstrike, and italic. Anyone who abhors embedded printer control commands will be tickled to death with these features. You can also pause to select a print wheel, or you may define your own print wheel.

An abbreviation list is created by using the Shorten command. Abbreviations can be stored in a library for later insertion into the documents. Similarly, *Word Result* can create header/footer lists, store them in a library, and associate them with a document.

Registers are *Word Result's* mail-merge facility. You can create any number of separate registers containing approximately 1,500 to 2,000 records with 14 fields each. Registers are stored on separate data disks and can accommodate your own customized format. You can sort the register on any specified field and select



those register items you wish to incorporate in your document. The mail-merge facility works well.

Hyphenation is handled algorithmically, and you can set the hyphenation zone on your document information page. But the hyphenation rules create some strange-looking breaks in text. This can be overcome with the Indivision command, which specifies words not to be divided.

Word Result works in conjunction with Handic's powerful spreadsheet *Calc Result*. A split window lets you view and work on both programs at once, and you can also create bar and pie charts with *Calc Result* for insertion into your document.

The program is written in FORTH, and the document file is filled with millions of special formatting codes. It relies on a virtual memory design that allows documents to be larger than the available memory. All the same, moves through a document are slow because the program is working over the entire computer memory, and on disk as well.

CUSTOMER SUPPORT In addition to the poor documentation (which needs an extensive rewrite), I find *Word Result's* customer support situation disturbing. I spent 2 frantic weeks on the phone to Handic trying to locate an expert user. While the staff was responsive and courteous, it became apparent that only one lone program developer in Stockholm could answer my queries. Unfortunately, he was asleep while I was awake and transoceanic talk does not come cheap. What transpired was an international "chain phone call." My questions would be transmitted to Sweden, and after the normal delays, I would receive an answer. I'd expect a company with serious marketing intentions in this country to make better provisions for technical support.

There are bound to be updates of this program. As a matter of fact, Handic offers an update membership for an annual \$25 fee. At the risk of sounding ethnocentric, I believe that *Word Result* is essentially a powerful word processor with a design that is too muddled to be a strong contender here in the United States. Unless you need the multilingual capabilities, I would look at other word processors.

—Robin Raskin

WORDMARC 4.1.1

WordMARC 4.1.1 is like a down comforter. It puts a big, soft protective layer between the user and the text. This type of interface is appropriate for a corporate word processor that, like *WordMARC*, is aimed at word processing departments and other corporate groups that want to use a single word processor on several different brands of computer. The program's additional capabilities for using alternate character sets and for designing special fonts also make it a contender for scientific word processing and foreign language use.



WordMARC 4.1.1

MARC Software International Inc.
260 Sheridan
Palo Alto, CA 94306
(800) 831-2600
(800) 437-9900 (in Calif.)

Requires: 256K RAM for DOS 2.0 or 2.1, 320K RAM for DOS 3.0, two disk drives.

CIRCLE 677 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM=0, RM=163
Line Spacing: LS=1-3, LF, KP, KN, WC, OC
Character Formats: VP, PW, BO, UL, SP, SB, ST, SC, CB, ASC, CT
Page Formats: LIT, LLB, GL, GR, LP=32765, HT, HL, HR, FB, FL, FR, PL=999, PW=163, MP
Tabulation Format: TL, TR, TC, DC
Header/Footer: SL, UM, OF, AN, RN, PA, THF
Multiple Columns: TC, NC, CP=80, UC, GW
EDITING SCREEN DISPLAYS
Nontext Display: RO, CC, LN, PN, DF, DK, DR
Text Display: SL=20, SC=163, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OD, DA
Deletion Formats: CD, WB, LB, SB, PB, PGB, DB
Character Features: HH, SH, HB
Cursor Movement: CM, SD, NC, NL, NW, NSC, NPG, BSC, BPG, BD, SL, SR, JC, JP, JM, CK
Block Editing Tools: UM, AB, CO, MV, CP, DE, AR, DF
Search and Replace: FO, CS, AS, FS, FR, VY

PREINTER SUPPORT

NP=92, UF, SF=2, ES, EO, QU, PS

FILE HANDLING

Document File Strategy: LM, DF, ASC, DS=650
PAGES

EXPANDED FACT FILE

List Price: \$495

WordMARC

Document Saving: EN, ER, DL, EL, PL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IAL, IOTH, EAL, EOTH

SPECIAL FEATURES

Spelling Checker: WD=60000, UG, UD, US, ED, IC, MR, IM, AD, QK
Other: CK, CS, SF, MM, GR, FL, SC, TM, HA, HS

WordMARC 4.1.1

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WordMARC 4.1.1

WordMARC 4.1.1

offer a feature-filled word processor that guides the user and reassures him at the same time.

KEY CONSIDERATIONS Unfortunately, in the name of optimization, MARC Software has ignored standard IBM PC keyboard conventions, using the large Plus key on the numeric keypad as the Execute or Enter key, PgUp as the PgDn key, Home as the PgUp key, and number 5 as the Home key. The IBM keyboard's Return key is reserved for inserting carriage returns.

In some functions, such as cursor movement, MARC Software uses the function key strategy to elegant effect. You can move the cursor quickly by pressing *WordMARC's* Forward or Reverse key followed by the letter, space, or formatting code you wish to go to. This technique is great where it's available, but *WordMARC* doesn't have equivalent methods for deleting words, moving to the top or the bottom of a document, or going from one end of a line to the other. Thus, these common tasks require three or four keystrokes.

The block editing and search-and-replace tools demonstrate the way *WordMARC* strings together functions for smoothly manipulating text. To move or copy part of the text, you don't have to define a text block explicitly; instead you press *WordMARC's* Move or Copy function key when you are at one end of the area, move the cursor to the other end, and press Execute (the Plus key on the numeric keypad) to define the area. When the questions "MOVE to where?" "COPY what?" or "REPLACE with?" appear, you can use text from within the document, or you can call on the file function to work with text from another document file or glossary. A wildcard capability in search and replace would be a valuable enhancement to this function.

Nearly all the features for formatting the final text are part of *WordMARC's* format line, including line spacing, margins, and page length. The header and footer features of the format line enable you to set top and bottom margins as well as any number of header and footer lines that can be centered or forced flush left or right. You also use the format line to designate the placement of periods, commas, and

hyphens for aligning columns of numbers or text. The DecTab feature is handy for right-aligning text. Automatic indentation of the first line of paragraphs would be a nice addition.

WordMARC has some interesting file-handling capabilities. It easily converts files between *WordMARC* format and ASCII formats and can also encrypt your document, after which you must enter a password to retrieve it. *WordMARC* does not create a backup file. Instead it stores the keystrokes, so that after a power failure it can replay the edit session to recover your document. The negative side effects of this recovery function are 2- to 3-second halts while editing and printing, and single-character deletes that take nearly a second.

■ *WordMARC's* security blanket quality is most obvious in its command strategies.

The program speeds up enormously when you switch its recovery option off.

If you decide to do without recovery and want to make a backup of your document onto a second disk without leaving *WordMARC*, you'll have to follow a circular route. The file option is accessible only from edit mode, and yet on completion the file option always leaves you at the main menu. From here you must go back into edit mode, invoke the file option, and make the copy.

WordMARC's spelling checker can create a listing of misspelled words as well as flag them in the text, but you'll have to correct the misspellings yourself. Other special features include a very workable mail merge and the availability of Greek/math and chemistry/math character sets. You can take advantage of *WordMARC's* superscript and subscript capabilities when creating scientific or mathematical characters within these fonts or when designing your own alternative character sets.

The differences among the written tutorial, the user guide, and the technical refer-

ence manual demonstrate how *WordMARC* has been designed for both corporate word processing and scientific and mathematical applications. The tutorial is overthorough; each chapter starts and ends with cute, patronizing comments, apparently written on the assumption that the operator is not only inexperienced but stupid. At the same time, the dense writing style of the tutorial is more appropriate to a technical manual. In contrast, the user's guide is a model reference text. While it doesn't use many graphics, the guide describes every aspect of the program thoroughly and clearly.

The fact that *WordMARC* has a separate technical reference manual suggests that it is intended for use in a corporate setting, where a systems person would set up the program for the users. You'll need to turn to this manual to find out how to add color, change the default print options, or support a new printer. It also explains how to alter prompts and function keys and add dictionaries.

Two related products are expected to appear on the market at any time. *WordMARC Author* will be a subset of *WordMARC*, appropriate for memos and letters. It will include a new on-line help feature and footnoting, but the spelling checker will be optional. *WordMARC Composer* goes in the other direction, adding features to *WordMARC* to make it a professional word processor. In addition to offering the two new *WordMARC Author* features, *WordMARC Composer* will automatically handle indexes and tables of contents and will also number outlines and figures, cross-reference figures, and update figure references.

PROMISED IMPROVEMENTS The next version of corporate *WordMARC* will revamp the numeric keypad according to IBM PC conventions. It will also incorporate more streamlined methods for deleting words and moving the cursor to the ends of lines and documents. The insert mode will still be the drop-down type, but the succeeding line of text will remain on-screen.

While these improvements will not make *WordMARC* a quick, intuitive, professional word processor, they will make it a serious candidate for corporate and scientific audiences.—Stephanie Stallings



WORDSTAR 2000 PLUS 1.01

WordStar 2000 Plus 1.01 is a brand-new word processor from MicroPro that gives you a distinct feeling of déjà vu. While it is more comprehensive, more logical in format, and easier to learn and use than its illustrious predecessor, there's just enough of the original WordStar left to remind you where it came from.

The software comes in a well-stocked package containing seven disks, a reference guide, a training guide, an installation guide, and an advanced features guide. This impressive assembly of materials actually makes up an intricate but well-documented and -supported word processor. Once you have gotten past the first learning stages in WordStar 2000 Plus, you will find yourself with a very useful and multifaceted system—as long as you don't mind a few stumbling blocks.

The two major ways in which WordStar 2000 Plus hearkens back to WordStar lie in its almost exclusive use of Control key combinations for transmitting editing function commands and its use of pull-down editing menus. To transmit most editing commands, you choose a Ctrl-letter combination from the main editing menu. This in turn brings you a secondary menu, which lists a variety of available functions. WordStar 2000 Plus' greatest departure from its predecessor is in its use of mnemonically more logical letter assignments for control keys. For example, Ctrl-R-S removes a sentence, Ctrl-R-W removes a word, Ctrl-B directs block functions, and Ctrl-C controls cursor movement. Once you begin memorizing the Control key commands, you can speed things considerably by pressing the appropriate keys immediately in sequence, which prevents the secondary menu from scrolling down.

When you begin a new file, the program immediately asks which of six predefined formats you wish to use. These formats represent typical manuscript styles that a user might require. For example, a format named MSCRIPT features double spacing and centered page numbers, while MEMOFORM offers single spacing, wide

top and bottom margins, and no page numbering. These formats are not set in stone, and once a format is assigned to a file, you can personalize it by running through a menu of options or alter it from within the manuscript. You can also create your own format and save it for future use.

Predefined formats are an interesting concept, although I found the obligation to choose a format each time I began a manuscript annoying. It also makes importing a foreign file slightly more complex: You must first create a formatted file within WordStar 2000 Plus and then copy the imported manuscript to the new file.

PREFAB WINDOWS The editing screen is predivided into two windows. The upper third of the screen holds the editing menu that lists all the command categories and is divided from the working area by a ruler line. However, experienced users can eliminate the main and secondary editing menus from the screen, which makes more room for the manuscript. The top line of the editing screen shows the filename; the page, line, and column numbers; and the insert mode. I was surprised to see that there was no indicator for the NumLock or CapsLock toggles; this is certainly not a fatal omission, but it would have been handy.

From the main editing menu you move into the secondary menus by pressing the Ctrl-character combination. You also have constant access to context-sensitive help menus by hitting Ctrl-G for get help.

WordStar 2000 Plus makes a number of useful functions immediately available that other word processors tend to treat as exotic add-ons. For example, the key glossary, which is accessible from the main menu, enables you to easily assign long phrases to words or even to single letters. This is nice to have even for shorter phrases—I was able to avoid typing "WordStar 2000 Plus" over and over while writing this review by simply hitting W-Esc every time the title was needed. Mail merge and the spelling checker are also quickly and easily accessed from the editing menu.

You can print a manuscript by either saving from the main menu or hitting Ctrl-Q (Quit-Print) from the editing screen. Once you go to the print menu, you have a

list of options that you can either go through one by one or bypass by hitting Ctrl-Q. Then you must hit Return again to signal that the printer is ready—an additional safeguard that may be one too many.

The windowing function that MicroPro has added is a definite plus, since it allows you to work with two or three files simultaneously. WordStar 2000 Plus automatically slices the screen into two or three horizontal sections, depending on how many files you name (although a triply divided screen doesn't have enough room allotted to each file to be really useful). I would have been even happier if the program also bounced between full-screen windows (I hope that's on somebody's drawing board at MicroPro).

Another interesting addition is the Option Display (Ctrl-O-D) command, which gives you the choice of a WYSIWYG screen with all special formatting commands hidden, or a partially formatted screen with all the commands visible in whole words. However, the hidden commands can get in your way if you're not careful. For example, while in WYSIWYG mode I tried to delete a line that contained hidden format commands, I was interrupted with a message warning me that header, footer, and comment markers are automatically deleted when you delete their lines. I had to toggle to the other mode to separate the formatting commands from the text in order to safely remove the line.

THE EXTRAS WordStar 2000 Plus includes MicroPro's CorrectStar spelling checker and MailMerge. It also packs in TelMerge, a communications program; MailList, a preformatted mailing list utility; and Starindex, which creates an index and/or table of contents for your manuscript (in several different formats). All of these functions, with the exceptions of MailList and TelMerge, can be accessed directly from the editing menu; the others are found separately on the main menu. While I did not test each of these essentially full-function programs separately, I did do quite a bit of work with CorrectStar, MailMerge, and MailList—and they were all well integrated with the host program. MailList especially seemed to be a very handy function because it removed much

of the tedious work from formatting and preparing a mailing list. I had the same general reaction to the spelling checker, although it tried to correct the word *microprocessors* to *microprocessor*. *TelMerge* is a fairly ordinary communications program that comes complete with scripting facilities for the popular on-line databases and electronic mail services.

Despite all the functions that *WordStar 2000 Plus* has available, there are one or two curious, if minor, omissions. For example, it is very easy to center and justify text, and there is even a command that automatically indents all margins by five characters. But there is no flush right/ragged left format, which I find invaluable when creating running headers for manuscripts. And while you have the choice of quickly deleting a word, a line, a sentence, or a paragraph, there is no way to block out a section of text other than the laborious method of marking the beginning and end.

In the end, how you feel about *WordStar 2000 Plus* may depend largely on how you feel about its command structure. Although I learned word processing with the original *WordStar*, I now find it a problem to use Ctrl-letter combinations to get at commands. Having to hit three keys in combination, for example, seems a great deal of trouble simply to delete a word.

MicroPro has done its best to solve that problem by giving users a choice: You can also perform many functions by using shifted and unshifted function keys, and the Alt key in combination with the numbered keys that run along the top of the keyboard. These alternative command keys are listed on the fourth and fifth screens of the primary help menu, and there is also a prompt card that comes with the manual. However, these lists are not as accessible to the user as the normal editing menu. It is almost as if MicroPro, while acceding to the demands of function key enthusiasts, did all it could to encourage you to stay with its original Ctrl-key formula.

WordStar 2000 Plus's major drawback is that the program is exceptionally slow. There is a noticeable pause every time you perform a block function, go to the top or bottom of a file, or print a manuscript, and I became even more impatient waiting for it to perform large block moves. The slow speed also tends to disable the "print while

edit" function: The manuscript is first fed into a disk buffer, and that process takes so long that it cancels out the convenience of being able to work while printing.

But the strangest effect that this lack of speed has is the way that the cursor, if sent down a file too fast, will seem to lose the manuscript—the whole screen area goes blank until the words actually catch up.

As a corporate word processor meant for employees relatively new to or shy of microcomputers, *WordStar 2000 Plus* just misses the mark. Despite its excellent tutorials and comprehensive help menus, the vast number of control commands and formatting options would probably be daunt-

ing to somebody who is not able or willing to deal with its complexities. However, the program has so many advanced features, which it combines with a nice flexibility, that, but for its lack of speed, the more experienced user looking for a professional word processor might not go far wrong in examining *WordStar 2000 Plus*.

According to MicroPro, it's new 2.0 version of *WordStar 2000 Plus* (unavailable at press time) corrects many of the aforesaid flaws, including its pace. If MicroPro has indeed done something to speed up the program, it may have a fine and very appropriate replacement for *WordStar*. —Barbara Krasnoff



EXPANDED FACT FILE

WordStar 2000 Plus 1.01

MicroPro International Corp.
33 San Pablo Ave.
San Rafael, CA 94903
(415) 499-4095
(415) 499-1200

Requires: 256K RAM for DOS 2.0 or 2.1, 320K RAM for DOS 3.0, two disk drives.

List Price: \$495 basic,
\$595 Plus



CIRCLE 676 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:1, RM:240, AL, AO
Line Spacing: LS:2-8, LF, KN, OC
Character Formats: VP, PS, AP, PW, BO, IT, UL, SP, SB, ST, SC, CB, ACS
Page Formats: LIT, LLB, GL, GR, LP:500, HT, HL, FT, FB, FL, PL:500, PW:132, MP
Tabulation Format: TL, TR, TD, TC, DC
Header/Footer: SL, UM, OF, UP, AN, RN, PA, THF
Multiple Columns: NC, CP:0

EDITING SCREEN DISPLAYS

Nonexit Display: RC, CC, LN, PN, DF, DK, DR
Text Display: SL:23, SC:0, WA
TEXT ENTRY AND EDITING
Typing/Editing: FC, IT, ED, DA, CA
Deletion Formats: CD, WA, LA, LE, LB, SA, SE, PA, PE, DA

Character Features: HH, SH

Cursor Movements: CK, SD, NC, NL, NW, NS, NP, NSC, NPG, BL, BS, BP, BSC, BPG, SU, SD, SL, SR, JC, JP, JM, JK
Block Editing Tools: HL, AB, CO, MV, CP, DE, FC, FP, FPG, FT, AR, HA, DF, TM, AW, HF, FN

Search and Replace: FO, BK, CS, CI, CP, WW, AS, WS, FS, RP, VY

Undo Utility: UD, RP

PRINTER SUPPORT

NP:17, ES, EO, QU, CH, PW, PS, OF

FILE HANDLING

Document File Strategy: FD, LM, DF, CT, OTH, DS:8192000 BYTES

Document Saving: AB, MS, EN, ER, EL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR

File Import and Exports: IM, IAP, IWS, EAL, EWS

SPECIAL FEATURES

Spelling Checker: WD:9000, UG, US, SW, DB, ED, IC, BG, MR, IM, AD, QK, QL
Other KM, CK, CS, SF, MM, MMD, FE, FF, AI, AT, DV, TV, TM, HA, HS, MS, MA, TC



WordStar 2000 Plus's optional Display mode makes otherwise hidden formatting commands such as margin changes visible to the user.

"Her smile was so enchanting,"

"there was no way I could refuse her.

So when she asked me to help her write the Annual Report,
I was ready and willing."

✓ denotes IBM-AT compatibility.

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✓Rainbow Writer Screen Grabber 1.1	69.
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Ashton-Tate

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✓dBase III	call
✓Framework II	call

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✓Turbo Database Toolbox 1.1	30
✓Turbo Graphics Toolbox 1.0	30
✓Turbo Editor Toolbox 1.0	37.
✓Turbo Gameworks 1.0	37.
✓Turbo Newpak (Gameworks and Editor)	52.
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✓Ready 1.0	49.
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✓Managing Your Money 2.0	99.
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Micropro

✓Easy 1.0	97.
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✓WordStar 2000 Plus 1.01	299.
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-Norton Utilities 3.1	59.
Powerbase Systems	
-Powerbase 2.1	197.

Quarterdeck	
-DesqVIEW 1.0	65.

Ressoft	
-Prokey 4.0	89.

Satellite Software	
-WordPerfect 4.1	239.

Scarborough Systems	
-Your Personal Net Worth 1.1	59.

Simon & Schuster	
-Webstar's New World Speller 1.2	39.

Software Digest	
Ratings Newsletter	

This publication is unparalleled for its comprehensiveness, reliable evaluations. 1985's issues evaluate the following programs: word processors, file mgt., database mgt., spreadsheets, graphics, integrated acctg., project mgt., communications, integrated productivity.

Single copy	24.50.
Year subscription	245.00.

Softstyle	
-Printworks 1.05	39.

Software Group	
-Enable 1.1	call

Software Publishing	
-PFS:Proff B.01	59.
-PFS:Report B.01	77.
-PFS:Access A.00	84.

-PFS:File B.01	84.
-PFS:Graph B.01	84.
-PFS:Plan A.01	84.
-PFS:Write C.00 (w/PFS:Proff)	84.
-First Success (Combo Pack includes PFS: Write, Proof, Plan, File)	229.

Sorcim/US	
-SuperCalc 3 2.1 (w/Sideways)	199.

Spectrum Holobyte	
-Art Studio	32.
-Executive Picture Show	139.

Springboard	
-Newsroom	35.
-Clip Art Volume 1 (for Newsroom)	19.

Union	
-Art Gallery 1	22.
-Printmaster 1.1	37.

United Software	
-Einsteinwriter 7.2 (w/coupon for free Speller)	99.
-In-House Accountant 2.05	109.
-ASCII Pro 4.23	69.

Xanaro	
-Ability 1.0A	call

TRAINING

ATI	
SKILL BUILDER PROGRAMS	
Intro and How To Use:	
Word Processing MS-DOS	
Business Software PC-DOS	
Data Bases Typing Tutor	
Compaq BASIC	
IBM-PC	each 38.

TRAINING POWER PROGRAMS	
How to Use:	
dBase II dBase III Lotus 1-2-3	
MS Word BasicCalc 3 Multimate	
Multipan Wordstar Framework	
Wordperfect Symphony Displaywrite 3	
	each 49.

Friendlysoft	
-PC Intro Set	35.

INDIVIDUAL SOFTWARE	
-The Instructor II	35.
-Professor DOS	47.
-Tutorial Set (both items above)	75.
-Professor Phial	47.
-Typing Instructor	39.

-Training for Lotus 1-2-3	\$49.
-Training for dBase III	49.
-Training for Project Management	49.
Scarborough Systems	
MasterType	26.
Simon & Schuster	
-Typing Tutor III	33.

EDUCATIONAL

Barron's	
Computer SAT	59.
Designware	
Spellchecker (ages 6 to adult)	25.
Mission Algebra (ages 13 to adult)	27.
European Nations (ages 9 to adult)	27.
Grammar Examiner (ages 9 to adult)	27.
States and Traits (ages 9 to adult)	27.
Digital Research	
Diagnostic Test (PSAT)	14.
OwlCat SAT (15 hours)	63.
OwlCat SAT (60 hours)	169.

Eduware	
Algebra 1	22.
Algebra 2	22.
Algebra 3	22.

Harcourt Brace Jovanovich	
-Computer SAT	49.
-Computer GRE	57.

Scarborough Systems	
-Build-a-Book (ages 2 to 12)	19.

Simon & Schuster	
Lovejoy's SAT	39.

Spinnaker	
All Spinnaker products now work with DOS 2.x and 3.x	

Educational Games for Young Computer Users. (All require graphics board)	
--	--

-Face Maker (ages 3 to 8)	18.
-Kids on Keys (ages 3 to 9)	18.
-Fraction Fever (ages 7 to adult)	18.
-Kinder Comp (ages 3 to 8)	18.
-Alphabet Zoo (ages 3 to 8)	20.
-Kidwriter (ages 6 to 10)	20.
-Trains (ages 3 to 8)	20.
-Snooper Troops I (ages 10 to adult)	23.
-Snooper Troops II (ages 10 to adult)	23.
-In Search of the Most Amazing Thing (ages 10 to adult)	23.
-Delta Drawing (ages 4 to adult)	27.
-President's Choice (ages 4 to adult)	27.

Springboard	
-Fraction Factory (ages 8 to 14)	19.
-Make A Match Math (ages 2 1/2 to 6)	19.
-Piece of Cake Math (ages 7 to 13)	22.
-Early Games for Young Children (ages 2 1/2 to 6)	22.

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 603/446-3383

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PC CONNECTION®

"I knew we were compatible,"

"but if I didn't get more memory,
an on-line Thesaurus, and Automatic Outlining
in a hurry, the only thing getting the boot
would be me."

Springboard (continued)

Music Maestro (ages 4 to 10)	22
Easy As ABC (ages 3 to 6)	24
Stone (requires graphics board)	
Across the U.S.A. (ages 5 and up)	22
My Letters, Numbers, Words (ages 1 to 5)	29
Kids Stuff (ages 3 to 8)	29
Memory Master (ages 3 to 8)	29
The Learning Company	
Addition Magician (ages 6 to 10)	23
Magic Spells (ages 6 to 10)	23
Word Spinner (ages 6 to 10)	23
Reader Rabbit (ages 5 to 7)	26
Mopetown Hotel (ages 8 to 13)	26
Number Stumper (ages 6 to 10)	26
Mopetown Parade (ages 8 to 12)	26
Rocky's Boots (ages 9 and up)	32

RECREATIONAL

Blue Chip	
High finance simulations	
Baron	32
Millionaire	32
Squire	32
Tycoon	32
Broderbund	
Championship Lode Runner	23
Ancient Art of War	27
CBS	
Murder By The Dozen (your turn, Sherlock)	21
Electronic Arts	
Pinball Construction Set	25
Dr. J/Larry Bird One-on-One	28
Music Construction Set	28
Friendlysoft	
PC Arcade	35
Funtastic	
Among the finest arcade style games available	
Cosmic Crusader	27
Snack Attack II	27
Big Top	29
Master Miner	29
Hayden Software	
Sargon III (highest rated Chess program)	35
Infocom Difficulty levels shown in <i>italics</i>	
JUNIOR	
Seastalker	25
STANDARD	
Enchanter	
the Witness	
Cuthroat	
Planetfall	
Wishbringer	
Zork I	
Hitchhiker's Guide	each 25

ADVANCED

Zork II		Zork III		Infidel	
Sorcerer		Suspect			
A Mind Forever Voyaging	each	\$29			
EXPERT					
Deadina		Starcross		Suspended	
Spellbreaker	each	31			
Invisicubes (hint booklets) are available for most Infocom games. Specify game ... 6					
Microleague Sports					
Microleague Baseball (you are the manager) ... 25					
Microprose					
F-15 Strike Eagle	22				
Microsoft					
Flight Simulator 2.12 (now works with Hercules Mono Card)	32				
1Step Software					
Golf's Best (Pinehurst or St. Andrew's)	32				
Origin Systems					
Ultima III	39				
Parlor Software					
Bridge Parlor (the best Bridge simulation)	49				
PCSoftware					
Championship Blackjack	23				
Chess 2001	27				
Armchair Quarterback	27				
Professional Software					
Trivia Fever	22				
Trivia Fever II	15				
Super Sports Trivia	18				
SEGA					
Spy Hunter	29				
Sierra On-Line					
Championship Boxing	24				
Ulysses	24				
King's Quest	33				
King's Quest II	33				
Si-Tech					
Wizardry	42				
Spectrum Holobyte					
GATO	27				
Telstar (with Halley's Comet)	32				
Sublogic					
Night Mission Pinball	29				
Jet	33				
Scenery (airport) disks are available for Jet—100 airports ... each 15					
Telerium					
Rendezvous with Rama	27				
Amazon	27				
Fahrenheit 451	27				

XOR

NFL Challenge (be the coach)	\$79
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HARDWARE

AST Research

All AST Boards come with a full one year warranty.	
StarPakPlus 64k upgradeable to 384k, with clock calendar, serial & parallel ports & now includes Sidekick version 1.5 non-copy protected (game port optional)	225
384k (fully populated)	249
MegaPlus II 64k upgradeable to 256k (or more with MegaPak) with clock calendar and serial port (parallel, game, or second serial port optional)	249
I/O Plus II with clock calendar and serial port (parallel, game, or second serial port optional)	125
Parallel, game, or second serial port for any AST board (specify board)	35
AST-5251-11	579
AST-3780	579
Reach Modem half card 300/1200 baud internal modem includes Crosstalk XVI	349
Advantage 128k upgradeable to 1.5 Meg (or more with Piggyback Card), with serial, parallel ports, now includes Sidekick version 1.5 non-copy protected (game port and second serial port optional)	399
RAMapack upgradeable to 2Mb, fully supports LOTUS/INTEL expanded memory specification (EMS)	call
Amdak	
Video 300G composite monitor (green)	129
Video 300A composite monitor (amber)	139
Video 310A mono monitor (amber)	169
Color 600 - RGB monitor	399
Color 710 - RGB monitor	449
Compucable	
Plastic Keyboard & Drive Cover Set	17
IBM Mono Screen Enhancement	17
Cuesta	
Uninterruptible power backup units	
Datasaver 240 WATT	call
Datasaver 400 WATT	call
Curtis	
ACCESSORIES	
PC Pedestal (for IBM Mono or Color)	37
Portable Pedestal	47
System Stand	19
System Stand for IBM-AT	37
Low Profile Tilt and Swivel Pedestal	37
Crystal 300-watt (line conditioner)	159

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"So I asked for her number."

"She just smiled
and handed me a slip of paper.
'Before you try to connect with me, you better
connect with them.'"

CABLES

- AC Plug Adapter (any monitor to your PC) 8.
- Smartmodem to IBM Cable... \$17.
- Keyboard Extension Cable (3 to 9 feet) 27.
- Extension Cables for IBM Mono Display 33.
- Color and Monochrome Extension cables 39.
- Printer-to-IBM cable 17.

SURGE SUPPRESSORS

- All surge suppressors have an on/off switch.
- Safestrip 21.
- Diamond (6 outlets) 28.
- Emerald (6 outlets; 6 ft cord) 34.
- Sapphire (3 outlets; EMIRFI filtered) 44.
- Ruby (6 outlets; EMIRFI filtered; 6 ft cord) 50.
- Command Center (5 outlets; EMIRFI filtered; digital clock; master key switch; circuit breaker) 123.

DataProducts

- 8050 color printer call
- 8070 color printer call

Epson

- All Epson dot matrix printers have built in graphics capability. In addition, the LX-80, FX-85, FX-185 and LX-90 can all print in near letter quality (NLO).
- DX-10 (letter quality) call
- DX-20 (letter quality) call
- FX-85 (replaces FX-80+) call
- FX-185 (replaces FX-100+) call
- JX-80 call
- LX-80 call
- LX-90 call
- LQ-1500 (letter quality dot matrix) call
- EQ-2000 Ink Jet call
- Epson Books call
- Printer-to-IBM cable 15.

We are an authorized Epson service center.
Ask about the extended service plan.

FTG

- Light Pen 195.
- Demo Disk for Light Pen 39.

Hayes

- Smartmodem 300 149.
- Smartmodem 1200 389.
- Smartmodem 1200B (w/Smartcom II) 349.
- Smartmodem 1200B (no software) 289.
- Smartmodem 2400 579.
- Smartcom II 2.1 (software) 89.
- Transet 1000 289.
- Accessory Kit for Transet 1000 (cable and software) 29.

Hercules

- Hercules Color Card (parallel port) 169.

PC Connection Hardware Special

through January 31, 1986

QUADRAM

The Gold Quadboard 6k

Quadram introduces a new standard in PC enhancements.

Includes:

- Memory expansion to 640k using 64k or 256k chips
- RGB and Composite Video Output
- Parallel and serial port
- (2nd parallel or serial port optional)
- I/O bracket, clock calendar
- Keyserver, QuedMaster III Software, PolyWindows DeskPlus™, QuedPaint
- 100% IBM-PC compatibility... \$369.

- Hercules Graphics Card (parallel port) 299.
- Hercules Graph-X Software 2.0 42.

Innovative Concepts

- Flip n' File 50 12.
- Flip n' File 50 w/lock 16.
- Library Case (holds 10 disks) 4.

Intel

- Above Board PC call
- Above Board AT call
- Piggyback Board for AT call
- 8087-3 129.
- 8087-2 139.
- 80287 225.

Kensington Microware

- Masterpiece 94.
- Masterpiece Plus 129.
- Printer/portable computer stand 17.

key tronic

- 5150 keyboard 139.
- 5151 keyboard (deluxe) 169.
- 5153 keyboard (with touch pad) 289.
- AT Converter (allows Key tronic 5151 keyboard to work with the AT) 12.

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Kraft

- Joystick \$29.
- Executive Cursor Control (w/Joystick) 47.
- Executive Cursor Control (software only) 27.

Mouse Systems

- PC Mouse (w/software, pad, & PC Paint) 139.

NEC

- Pinwriter P2-3 (IBM, 80 column) 559.
- Pinwriter P3-3 (IBM, 132 column) 759.
- Pinwriter P5 (IBM, 132 column) 899.
- Spinwriter 3550 (letter quality 32 cps) 1099.
- Spinwriter 8850 (letter quality 50 cps) 1489.

Orchid Technologies

- All Orchid Boards come with PCnet Drive (Ram disk), PCnet spool (print spooling), disk caching & partitioning.
- Conquest Multifunction Board (2K upgradeable to 2MB, fully supports LOTUS/INTEL expanded memory specification (EMS), includes clock calendar, serial port, and parallel port. A PCnet Daughter Board can be added 269.
- PCnet Daughter Board piggybacks to Conquest with networking software call
- PC Net (stand alone card) call
- PC Turbo 186 w/256k and Turbo Daughter Board expandable to 640k, increase the speed of your PC call
- Excel Multifunction Card for the AT

- 2K upgradeable to 1 Meg, fully supports LOTUS/INTEL expanded memory specification (EMS) and Error Correction Code (ECC), (serial and parallel ports optional) call

Paradise Systems

- Color/Mono Card 149.
- Modular Graphics Card 275.
- Backpack for Modular Graphics Card (2K upgradeable to 384k) 225.
- Multidisplay Card 195.
- Five Pack w/384k 149.

PC Designs

- FD 1000 Computer 789.
- PC Magazine called it "a top performance bargain" (Oct. 15). PC Week called it "a terrific machine at a terrific price" (May 10). Please call for more information about this computer.

Pricetown Graphics

- HX-12 RGB monitor (690 x 240) 449.
- HX-12E RGB monitor (EGA compatible) 589.
- MAX-12E Amber monochrome monitor 179.
- SR-12 RGB monitor (690 x 480) 597.
- ISM Scan II Board for SR-12 149.

PC CONNECTION®

"800/243-8088, she wrote."

"My hands were shaking but I dialed.
Two days later my system was fully upgraded.
The smile turned me on. But it was PC Connection
that got me on a roll."

Quadram

Expanded Quadboard with clock calendar, parallel, serial & game port, i/o bracket, and Quadmaster software.
384k (fully populated) \$229.
2K (upgradable to 384k) 169.
Gold Quadboard 2K upgradable to 640k, includes Quadmaster III software, clock calendar, serial port, parallel port, and IBM compatible color graphics (second serial or parallel port optional) special
Silver Quadboard 2K upgradable to 640k, includes Quadmaster III software, clock calendar, two serial ports, and game port 215.
Liberty Board 64k upgradable to 2Mb, fully supports LOTUS/INTEL expanded memory specification (EMS) 287.
Quad Sprint w/8086 processor, increases the speed of your PC 479.
Short Ram Card 64k 169.
Microfazer Printer Buffer (parallel) w/copy MP 64 (64k) upgradable to 512k 159.
Quadcolor 1 197.
Quadchrome Monitor 469.

SMA

PC-Document Keyboard Templates available for:

DOS/Basic 1.1	Supercalc 3
DOS/Basic 2.0-2.1	Wordstar
DOS/Basic 3.0-3.1	Wordstar 2000
Lotus 1-2-3	Turbo Pascal
Symphony	WordPerfect
Multiplan (IBM)	dBase II
Multiplan (Microsoft)	dBase III
Framework	Multimate
Volkswagen Deluxe each 12.

Toshiba

All Toshiba printers listed are 24 pin dot matrix.
P1340 printer (80 column) 439.
P341 printer (136 column) 899.
P351 printer (136 column) w/serial and parallel interfaces 1129.

WICO

Joystick 35.

DRIVES

All floppy drives are completely pre-tested and are supplied with a printout of the test results. They are shipped with complete step-by-step installation instructions. Drives are 320k/360k.

Control Data (CDC)

(5 1/4") half-height drive (DS,DD) \$79.

IOmega

Bermouli Box 20 Meg with PC2 Card 2349.
10 Meg cartridge 48.
Head Cleaning Kit 69.
Standard Interface (PC2) Card 129.
We are an authorized IOmega service center.

OUR POLICY

- We accept VISA and MASTERCARD.
- No surcharge added for charge cards.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order.
- No sales tax.
- All shipments insured; no additional charge.
- Allow 1 week for personal and company checks to clear.
- UPS Next-Day-Air available.
- COD max. \$1000. Cash or certified check.
- 120 day guarantee on all products.*
- To order, call us anytime Monday thru Friday 9:00 to 9:00, or Saturday 9:00 to 5:30. You can call our business offices at 603/446-3383 Monday thru Friday 9:00 to 5:30.

SHIPPING

Continental US: For monitors, printers, and drives, add 2% for UPS ground shipping. Call for UPS Blue or UPS Next-Day-Air. For all other items, add \$2 per order to cover UPS shipping. We will automatically use UPS 2nd-Day-Air at no extra charge if you are more than 2 days from us by UPS ground.
Hawaii: For monitors, printers, and drives, actual UPS Blue charge will be added. For all other items, add \$2 per order. **Alaska and Outside Continental US:** Call 603/446-3383 for information.

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Seagate

20 Meg Internal Hard Drive (w/controller, cables, and manual) \$469.

Shugart

10 Meg Internal Hard Drive (w/controller, cables, and manual) 369.

Tallgrass Technology

TG 5025-25 Meg Hard Drive (w/controller and 60 Meg Backup Unit) call

Tandon

TM 100-2 (5 1/4") full-height drive (DS,DD) 95

TEAC

FD-55B (5 1/4") half-height drive (DS,DD) 85.

Tohiba

AT 360k Drive (5 1/4") half-height drive 99.

MEMORY

64k Memory Upgrade Set for IBM-PC or XT system board or any memory board

150 nanosecond (set of 9) 8

200 nanosecond (set of 9) 7.

Install memory upgrades & run diagnostics at time of board purchase only 10.

128k Memory Upgrade Set for IBM-AT System Board (9 chips piggybacked) 39.

256k Memory Upgrade Set for any IBM-AT memory board (9 chips) 39.

DISKS

DS/DD Disks for the PC & XT (40 TPI).

10 disks per box.

Maxell MD-2 19.

Verbatim Detailife (w/life calculator—for a limited time only) 19.

DS/HD High Density Disks for the AT (96 TPI).

10 disks per box.

Fuji 35.

Maxell 39.

Verbatim 45.

Flip Sort (holds 75 disks) 15.

INFORMATION SERVICES

CompuServe

CompuServe Information Service (includes subscription, manual, 5 hours of connect time, monthly publications) 19.

Dow Jones

Membership Kit 19

Source Telecomputing

The Source (subscription and manual) 39.

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CIRCLE 340 ON READER SERVICE CARD



PC Persistence.

Or, Paradise Revisited.

Remember this picture? We used it in our very first raccoon ad about two years ago. Back then we wrote your orders out by hand, and filed them on top of the fireplace mantle. 256K was a lot of memory. And, according to our calculations, only about 10% of the people now reading this ad even owned a PC.

But persistence has paid off. We've grown and thrived throughout all the trials and tribulations of the PC marketplace. Why we don't even have to sell moonshine any more to make ends meet.

Traditional values.

Shortly after our world famous micro mascot first plowed his way through your typical Marlow snowdrift, we cleared off the mantle and loaded everything into an IBM System 38. This mighty mainframe gives our sales consultants instant access to a multitude of mesmerizing minutiae. Like product availability, the status of your order, how much memory a program requires, what printers it supports, and whether a new version is expected soon.

With an ever-increasing array of electronic wizardry at their fingertips, our persistently pleasant phone people

can help you take your PC to new pinnacles of performance. You see, we still go to mind-boggling lengths to answer your *toll-free* technical questions—before or after the sale. We still guarantee every product we sell for a full 120 days, and many for longer than that. Our prices are still consistently among the lowest around. And, if a price ever goes down before we ship, you will automatically get the new low price.

Only a 4.3 light year drive from Alpha Centuri.

Alas, Marlow, NH remains a bit off the beaten track for even the most adventuresome of our customers. But you still have a standing invitation to visit us the next time your business takes you to Boston, or pleasure takes you to the ski areas of Vermont and New Hampshire. This spring we'll be opening our completely renovated store and training center in the old Christmas Trees Inn (partially pictured above) across the river from our headquarters.

Just call 1-800/243-8088 or 1-603/446-3383, M-F 9:00 to 9:00; Saturday to 5:30. If you're planning to visit, call ahead to make sure what you want is in stock. The showroom closes at 8:00 M-F and at 5:00 on Saturday.

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When corporate middle managers realized that their word processing departments had computerized tools they could learn to use themselves, they did what comes naturally—they used them. Many started by signing on to the dedicated machines after hours, when regular staff operators had gone home for the day. Others just hung around the department and looked for an idle machine they could use.

Most of them were analytical types who were trained in college to write on typewriters, and they liked the idea of creating and editing their own documents using the new word processing machines. Even if the first few documents they worked on were for personal use, they were soon demanding permanent, structured access to word processing machines, sometimes at their own desks.

Most found the software installed on the dedicated machines competent but wanting in the speed they were used to in the mainframe time-sharing terminals they used for their daily work. These professionals pleaded with word processing ven-

THE BUSINESS
OF
WORDS

PROFESSIONAL

WORD PROCESSING TOOK A PROFESSIONAL
LEAP FORWARD WHEN ANALYSTS REALIZED
THAT COMPUTERIZED TOOLS HAD
REPLACED TYPEWRITERS IN THE STENO POOL.

dors for better performance, but these pleas went largely unanswered because the departmental customers who made the buying decisions didn't want to see changes that might make the products incompatible or more difficult to use.



EDITOR'S CHOICE

Microsoft Word—If you want the best in text formatting combined with a consistent, flexible, and powerful user interface, consider **Microsoft Word 2.0** very seriously. What it lacks in speed it more than makes up for in wonderfully accessible word processing power and virtuoso screen and printer performance.

XyWrite II Plus—For sheer word processing speed, nothing tops **XyWrite II Plus 2.0**. You can easily customize this lean and mean word engine to your heart's content, and, perhaps best of all, **XyWrite** is more amenable to producing typesetter-compatible files than other programs in its class.

WordPerfect—Rarely has a product name been as descriptive as **WordPerfect 4.1's**. **SP**'s top product combines a full range of word processing and special features with excellent performance—and it does just about everything well.

NewWord 3—Some people call **NewWord 3 3.00** the product **WordStar 2000** should have been. Whatever you call it, **NewWord 3** packs a surprising amount of speedy word processing power onto a single floppy disk, and does it at a very reasonable price.

Microcomputers supplied the answer for these corporate professionals. Word processing was one of the first products packaged for early CP/M machines. Professional users brought them to the office or used them at home (practically inventing today's burgeoning work-at-home lifestyle) to create and edit status or research reports and general correspondence. Other users quickly took to the micros and their word processors as well; micros soon start-

ed showing up on writers' and editors' desks, at universities and public schools, and even in churches and law offices.

The IBM PC arrived, creating a minor revolution for professional word processors. Gone were the memory and disk-sized limits that hobbled earlier products. In their place came seemingly unlimited amounts of RAM and a highly improved disk operating system called DOS.

At first, **WordStar** and IBM's meager **EasyWriter** were the only word processors available for it. But it wasn't long before software geniuses from coast to coast began filling the marketplace with new products with new capabilities. Today, professional word processors are one of the hottest software markets in microcomputing, not an easy one to negotiate when making buying decisions—there are too many good products to choose from.

The price range may astound you and so will the quality of the breed. You may even be tempted to try switching a whole word processing department over to one of these beauties. In any case, you can look forward to finding the right product for your professional word processing needs right here.—**John Dickinson**

EXECUTIVE FOOTNOTER 5

As its name implies, the most significant feature of **Executive Footnoter 5** is its ability to handle footnotes, and the program is targeted primarily at academicians and other professionals who need the footnoting feature. On this score, **Executive Footnoter** does well—it turns footnoting into a straightforward, simple task. However, as a full-featured word processor, this program leaves much to be desired.

Creating footnotes with this program requires almost no effort on your part. Simply type the footnote in the body of the text where you want the superscripted number to appear. Put two less-than symbols in front of the footnote and two greater-than symbols after, >>like this<<. **Executive Footnoter** will take care of numbering the footnotes and putting them on

the bottom of the page, and it will even carry them over to the next page for you if necessary. If you prefer endnotes, the program will do that instead. It cannot handle endnotes and footnotes together in the same document, but that's not something you're likely to need too often.

Other advanced features in **Executive Footnoter** include automatic table-of-contents generation, automatic two-level index generation, and a full range of formatting features for printing the final output. A partial list of these features includes soft hyphens, right-justified tabs, and the ability to print text centered as well as in the more common ragged-right or fully justified formats.

One particularly nice feature is something that **Sof/Sys Inc.** calls electronic shorthand. This is a kind of search-and-replace operation that takes place only at print time. You create your own abbreviations by typing "<<.ab abbreviation". The *ab* can be any two letters that make sense to you as an abbreviation. **Executive Footnoter** will take the word or phrase you've defined and substitute it in the text wherever it sees the shorthand phrase. *ab*. You can also use this trick to enter printer control commands in the file.

Executive Footnoter has a maximum file size of only 27K bytes, but it also has the ability to chain files and insert files in the body of the text at print time. You can use either or both of these features to create as long a document as you can fit on your disk.

It's also worth noting that the file insert feature works nicely with electronic shorthand to provide a kind of poor man's mail merge. If you create a file with the name, address, and other variables entered as shorthand, you can then create a series of name and address files, each of which defines the variables differently. The program will then print a letter for each name and address if you tell it to read the appropriate file in each case. This is not suitable for large mailings, but it's a big improvement on manually searching for and replacing each variable for each letter sent.

INCHING ALONG IN BASIC Despite its good points, **Executive Footnoter** suffers from at least one major problem: speed, or rather, the lack of it. **Executive**

Footnoter is written in interpreted BASIC, which is notorious for slow execution. On almost every task—from search-and-replace operations, to processing a file while printing, to simply moving the cursor through the text—the slowness stood out to the point where the program's features became almost irrelevant.

(Soft/Sys appears to be aware of this difficulty and says it is rewriting the program in C. That should improve speed dramatically, but in the meantime, be aware that this is a real problem.)

Another problem is the program's documentation—both the printed version and the on-screen prompts. The on-screen prompts are occasionally misleading, and procedures aren't always covered in the manual.

One glaring oversight is a lack of instructions for importing files from other word processors. *Executive Footnoter* uses standard ASCII format for its files, but the built-in file management system is blind to any files whose names aren't in a special catalog file on the disk. Since this information is missing from the manual, I was left to discover it on my own. In the process, I crashed the program and was returned to BASIC level with the less-than-helpful message "Bad file number in 53."

Eventually, through trial and error, I found that *Executive Footnoter* doesn't like filenames that have extensions, and if you want to import a file, you have to start by renaming it appropriately. Problems like this are particularly annoying since they can be corrected so easily, either by putting the instructions in the manual or by adding appropriate error trapping in the program itself.

FOUR CAVEATS There are also at least four design features in *Executive Footnoter* that you ought to be aware of if you consider buying the program:

First, the program is based completely on embedded print commands, with no pretense to WYSIWYG screen formatting.

Second, there is no color capability. On color monitors, you can have any color combination you want as long as it's white on black.

Third, like early versions of *MultiMate*, *Executive Footnoter* uses drop-down in-



EXPANDED FACT FILE

Executive Footnoter 5

Soft/Sys Inc.
4308 Upton Ave. South
Minneapolis, MN 55410
(612) 929-7104

Last Price: \$69.95 without
spelling checker, \$99.95
with spelling checker



Requires: 128K RAM, DOS 2.0 or later, one disk drive.
CIRCLE 673 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JC, JN, JM
Margins: RM:255
Line Spacing: LS:1, OC
Page Formats: LIT
Character Formats: UL, ASC
Page Formats: LIT, LLB, GL, HT, HL, FT, FL, PW:255, MP
Tabulation Format: TL, TR, FC
Header/Footer: SL, UM, OF, AN, RN, PA
Multiple Columns: NC, UC, GW

EDITING SCREEN DISPLAYS

Nextent Display: RC
Text Display: SL:20, SC:79, WA

TEXT ENTRY AND EDITING

Typing/Editing: ID, DA
Deletion Formats: CD, WE, LA
Character Formats: HH, SH, HB
Cursor Movement: CM, SD, NC, NL, NW, BL, BD, SU, SD, JL, JM
Block Editing Tools: BE, AB, MV, CP, DE, AR, DF
Search and Replace: FO, CS, AS, VY

PRINTER SUPPORT

NP:19, PT, CH, PS

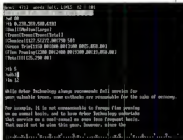
FILE HANDLING

Document File Strategy: FD, DF, CT, AS, DS:271

Document Savings: NB, MS, EN, ER, EL
DOS Facilities: DR, MU, CDK, ADR, SDR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Spelling Checker: WD:15000, UG, ED, IC, MR, IM, AD, QK, QL
Others: FP, FS, FE, FF, AI, AT, TM



Executive Footnoter is based completely on embedded print commands, with no pretense to WYSIWYG formatting.

sert. Aside from adding to the feeling of slow response while you're waiting the 1.5 seconds for the text to drop down, this feature can interfere with creative writing and editing, since you can't see any text below the line you're editing.

Fourth and finally, *Executive Footnoter* uses three different modes for entering and editing text. The add mode is strictly for adding new text—either when inserting it in the middle or adding it to the end. There is no way to back up in the add mode without deleting text and no way to back up past the beginning of a line, which means that if you notice a typo at the beginning of a line or two lines back, you have to leave the add mode to correct it.

The edit mode lets you move the cursor through the text and use the typing keys as command keys to delete, mark, or search for text. It won't let you edit, however. To do that, you have to move the cursor to the

appropriate spot in the text and go to either the add mode or the special edit mode.

The special edit mode slows cursor movement down to the point of being intolerable, but it lets you move the cursor and insert text. If the text goes beyond the current line, the program automatically puts you in the add mode.

Except for the three-mode approach to entering and editing text, these four design features are not problems so much as they are a matter of taste. But for me, at least, they make using the program clumsy.

Because of *Executive Footnoter*'s slow speed, it's hard to recommend it—even if you need the footnoting capability. But thanks to *Executive Footnoter*'s dependence on embedded print commands, there's another way to use it. You can create files with any text editor that uses ASCII format and use *Executive Footnoter* as a print formatter.



If you already have a word processor or text editor that you like and you need footnoting only occasionally, *Executive Footnoter* can prove to be a valuable tool. And at \$69.95, you might even consider it a bargain.—M. David Stone

EXECUTIVE SECRETARY V, EDUCATIONAL EDITION

Executive Secretary V, Educational Edition, comprises not just a word processor, but a communications program, spelling checker, and a file manager useful for both mail-merge and stand-alone file-management tasks. Cost? \$69.95. Any package advertising so much punch for so little money deserves scrutiny. However, the *Executive Secretary* is also the software equivalent of an adolescent because its wealth of features are hampered by poor coordination.

Executive Secretary operates in one of three editing modes. Edit mode allows you to move the cursor, make selections from a menu, and enter commands from the keyboard, but it does not allow you to do any actual editing. To do so, you must change to add mode. In the process, you trade away the ability to move the cursor; so that while you can type, you can't move somewhere else to correct an error (this constantly frustrated me).

A third mode, "special edit," allows you to do some of both, but it is limited to a single line (while in special edit mode, you cannot move the cursor from the current line) and it noticeably slows your typing speed. These functional divisions are made even more evident by the delay the program imposes each time you move from one mode to another.

With the exception of occasional lapses after word wrap, the screen never lagged behind my typing (however, the situation worsens as your file size increases). On the other hand, I encountered numerous delays while moving the cursor. If you wish to move past the bottom of the screen, you must press either one of the number keys at



EXPANDED FACT FILE

Executive Secretary V, Educational Edition

Glencoe Publishing
4300 W. 63rd St.
Indianapolis, IN 46268
(818) 990-3080

List Price: \$69.95



Requires: 128K RAM, DOS 2.0 or later (requires BASIC), one disk drive.
CIRCLE 674 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JC, JN, JM
Margins: LMS, RM255
Line Spacing: LF, OC
Character Formats: VP, PS, PW, BO, IT, UL, SP, SB, CR, ASC
Page Formats: LIT, LLB, OL, PL-999, HT, HL, HR, FT, PL, MP

Tabulation Format: TL, TR, PC
Header/Footer: SL, UM, OF, AN, RN, PA, THF

EDITING SCREEN DISPLAYS

Nonedit Display: RC, LN
Text Display: SL-20, SC-78, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: PC, ID, DA, CA
Deletion Formats: CD, WE, LA
Character Features: BH, SH, HB
Cursor Movement: CK, NC, NL, NW, NSC, BL, BD, SU, SD, JL, JM
Block Editing Tools: BE, AB, MV, CP, DE, AR, DF

Search and Replace: FO, CS, WW, AS, FS, FR, VY

PRINTER SUPPORT

NP-19, UP, PT, SF-2, QU, CH, PW, PS, AE

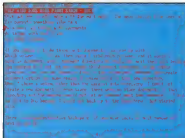
FILE HANDLING

Document File Strategy: FD, DF, CS, CT, ASC, DS-27 CHARACTER
Document Savings: NB, MS, EN, ER, EL, IN

DOS Facilities: DR, CDK, ADK, CDR, ADR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Spelling Checker: WD-15000, UG, UD, ED, IC, MR, IM, AD, QK
Other: KM, SF, MM, MMD, AI, DV, TM, TC



Executive Secretary's text-edit screen illustrates the accessibility of its command structure.

the top of the typewriter area of the keyboard (even numbers move downward; odd numbers, upward) or the Cursor up/Cursor down keys. Any of these actions (even moving just one line beyond the present screen) initiates a delay while *Executive Secretary* repaints the screen, one line at a time. To minimize this problem during typing, the program displays an entirely new screen (postponing another word wrap until you have filled another screen) when your text fills the current screen, preserving only the prior line for reference.

TRANSCRIPTION OR COMPOSITION

For an accurate typist transcribing final copy, the inability to move back and forth from editing to typing and the relatively slow cursor movement may not pose a problem. However, professional word processing consists largely of original composition—a process characterized by

the constant interweaving of typing, moving the cursor, and editing.

Used in the latter context, the program evokes the feeling of running a course interspersed with hurdles: You may get good at it, but you'll never forget you're doing it. If the freedom to forget about the tool while you concentrate on the task is a key to the effectiveness of a professional word processor, then *Executive Secretary* falls short of the mark. Keep that pronouncement in mind, but don't write off this program yet. If you can live with the aforementioned shortcomings, *Executive Secretary* possesses a range of other features that may make it worth a second look for those on a slim budget. Special economies include the ability to operate within just 128K bytes of RAM and support for the IBM PCjr operating in 40-column mode.

Printing can be accomplished in any of

three ways. While in edit mode, you can print from the cursor position forward in either "good" (formatted) or draft (unformatted with the addition of line numbers) mode. When you are ready to print final copy, you should exit to the printing program, called Fancy Print, to take advantage of the increased control it offers.

Fancy Print provides a menu from which you can set the following parameters: page offset, line length, lines/page, top and bottom margins, starting page number, page-number position, single or continuous sheets, line skipping, print start page, number of copies, and type of printer. In addition to its on-screen formatting, the program offers a rich variety of embedded printing commands. There are, in fact, several circumstances where there are two or three different ways to accomplish the same thing. Along with the normal complement of such commands are several standouts.

For example, groups of formatting commands or entire documents can be stored in external files and called as needed. Outlines or topic sentences within a document can be numbered and indented automatically—with no restriction as to how much text such an outline may contain (although this is *not* an outline processor: You cannot manipulate your document by rearranging outline headings). Printing can be controlled by conditional if-then statements. You might use this capability to select the appropriate salutation based on the gender of an addressee or suppress a blank line from appearing if a field is empty during a mail-merge. You can also combine such conditional statements using and/or operators to handle even more complex situations (for example, if the person contributed over \$100 and volunteered too, then insert a paragraph saluting them for their exceptional involvement in the charity drive). The program supports custom prompting at print time either to establish print parameters or provide keyboard input to a merge operation.

CARD FILE Along with a simple terminal communications program (which supports only Hayes-compatible modems at 300 baud) for the transfer of text files, *Executive Secretary* has its own "card file" program capable of storing data to be

merged with documents. Each record may have up to 13 lines, with up to 199 records per file. You can store multiple files, but access is limited to one file at a time.

The card file can also operate as a simple standalone file manager. In this mode it can sort on a single key and has a report writer similar in capability to the one found in *dBASE II* (offering a single level of subtotals). While you cannot specify compound criteria in your query ("Sales > \$1000" would be possible, but "Sales > \$1000 And Region = Northwest" is not), you can determine the row and column where fields are to be printed for custom label printing. *Executive Secretary's* mail-merge facility can also access files stored in several other common formats, such as DIF and SYLK.

Part of the blame for *Executive Secretary's* performance problems must rest with the relatively slow language (interpreted BASIC) in which it's written. While most of us would find that a liability, you might not require much speed in your work and know how to program in BASIC, so you may find an uncompiled program is (as one *PC Magazine* editor exclaimed) an irresistible opportunity to tailor a word processor to your likings. According to the program's author, the editor is being rewritten in C, with a new release targeted for the spring (this should solve some of the current execution speed trouble).

While *Executive Secretary* is inexpensive, versatile, and functional, it is neither fast nor easy to use. Let your word processing and economic priorities govern your choice.—Dick Ridington

EXECUTIVE WRITER 1.0

Executive Writer 1.0 was designed for the on-the-go executive who hasn't got time to memorize word processing commands. Every aspect of the program—from the generous and excellent on-line help to the function key screen menu—does its part to eliminate the need for a keyboard template, a quick reference card, or even the manual itself.

The style and ease-of-use of *Executive*

Writer led me to believe, at first, that it belongs in the personal word processor category, but a deeper investigation revealed a wealth of features like those found in most professional word processors: footnoting, automatic indexing and tables of contents, macros, 1-2-3 graphs, and odd and even page headers and footers. Need I say more?

EXAMINING THE OPTIONS *Executive Writer's* main menu has four options. You can get the directory for any drive, retrieve or begin writing a document, print a document, and quit. The edit and print modules are separate, and you must move through the main menu to access one from the other. This process isn't as clumsy as it sounds, however, because it allows you to boot up and print a document quickly, without having to first load it into the editor.

To call an existing document to screen from the editor module, you must know its name. Otherwise you must exit to the main menu, use the directory function to list the files, return to the editor, and then enter the name of the file you want retrieved. This is a little clumsy, and I wished I could simply point to a directory entry to retrieve it.

The editing screen uses four lines for information. At the top is a single line listing drive, path, filename, and extension of the current document. At the bottom are a ruler line (which should be at the top), a line with four on/off status indicators for insert/overwrite modes, document/nondocument modes, boldface, and underlining (which are very helpful), and a prompt line for the ten function key commands.

This prompt line is one of the high points of *Executive Writer*. The most commonly used commands—help, text reform, page layout, margins, centering, special codes, boldface, underlining, document/nondocument mode, and cursor jump—are assigned to F1 through F10, and each is listed on the prompt line along the bottom of the screen. Here's the nifty part: there are 30 more commands assigned to the ten function keys in combination with the Alt, Shift, and Ctrl keys—far too many to memorize. *Executive Writer's* solution is to change the prompt words for F1 through F10 every time you press Alt, Shift, or Ctrl. If you forget where a com-



mand is, you just press those three keys until you find it.

If you forget what a command key does, such as Alt-F5 (Update), you press F1 for help, which is another high point. The program asks you to press the key you need help with. By pressing Alt-F5, you receive a screen of help explaining that key combination. If you ask for help without a specific key in mind, you can press F1 a second time and choose help screens by topic, such as block commands or page layout. With *Executive Writer's* clever command prompt feature and this level of help, sharp-minded users might never need open the manual.

The Alt-function key menu has several useful file features, such as Save and Continue, Save and Exit, Abandon the File, Display a Directory, and Insert a File. There are also three timesavers here: one saves your macros, margins, insert and

document modes, and so forth into a library file; another does a global reformat after margin changes or massive edits; and the third displays a graph on screen. *Executive Writer* allows you to embed a code for the filename of a graph and print it in the middle of your text. It's powerful and easy, especially because you can preview the graph while you edit text. In three words, I loved it.

All but two of the Shift-function key combinations control search (and research)-and-replace operations in either direction. This seems like too many keys dedicated to the one function. Shift with F1 and F2 are reserved for you to define their functions. Too bad there aren't more of these user-definable keys and fewer dedicated to search and replace.

That lack of user-definable keys really doesn't matter much, though, because pressing Ctrl-F1 lets you record up to ten

macros, each containing up to 100 characters. You can do some very fancy tricks with these and save yourself a lot of time and effort. The remaining Ctrl-function keys perform block functions, including marking, saving to disk, moving, copying, deleting, undeleting, and changing character attributes. Block work is fast in *Executive Writer* and made simple by the series of helpful screen prompts.

TWO NOT-SO-MAJOR SHORTCOMINGS

The two major weaknesses of *Executive Writer* are the lack of automatic paragraph reformatting and the limited margin settings, which are global. The word *indent* does not appear in the index.

However, *Executive Writer* makes up for these shortcomings with its Global Reformat and Layout keys. The Layout key is most interesting, allowing you to save page layout definitions and call them up as templates for future documents. Layout allows you to control top and bottom margins, header width, page offset, line spacing, lines per page, and paragraph widows. With the exception of its lack of left and right margin control, this feature is an excellent ruler line that you can change and copy anywhere in your document, then save to a disk file.

Special "feather" commands, denoted by the European quotation marks, let you set hard and conditional page breaks; enter headers and footers and control their justification; automatically number pages, footnotes, and index references; enter the name of a page to be included at printing; insert nonprinting comment lines and printer control codes; and so forth. Again, I'd like to stress how difficult it would be to absorb all these commands without the excellent on-line help.

Executive Writer is a marvelous program, especially at \$69.95, but it becomes even more attractive when used with the separate *Executive Filer* program. *Executive Filer* is much more than just a mail-merge facility; it's a complete text management system. The "file cabinet" holds 64,000 records with up to 1,500 words per record, each indexed with as many as ten keywords.

The best feature of *Executive Writer* is that you are not limited to storing blocks of



EXPANDED FACT FILE

Executive Writer L.0

Paperback Software
2612 Eighth St.
Berkeley, CA 94710
(415) 644-2116

List Price: \$69.95



Requires: 128K RAM, DOS 2.0 or later, one disk drive.
CIRCLE 672 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JC, JN
Margins: LM, LM, 240
Line Spacing: LS 4-8, WC
Character Formats: BO, UL, SP, SB, CB, ASC
Page Formats: LIT, LBL, GL, GR, LP 99, HL, HR,
FL, FR, PL 99, PW, 240, MP

Rating: Old Pro too low

The sort of user protocol is based on the volume and quantity of service you receive. By printing things like this, you can see exactly what's going on in your system. If you want to upgrade the system or type of text, you can see exactly what's going on in your system. If you want to upgrade the system or type of text, you can see exactly what's going on in your system.

Our request comes in two parts. The first, we checked, that shows the system's current status. The second part shows the system's current status. The second part shows the system's current status. The second part shows the system's current status.

Tabulation Features: TL

Header: Header SL, UM, UP, AN, RN, PA

EDITING SCREEN DISPLAYS

Next: Display: RC, CC, DF, DK, DR
Text Display: SL, JR, SC, 79, WA, WD

TEXT ENTRY AND EDITING

Typing: Editing: FC, IT, OD, IM

Deletion: Formats: CD, WA, LA, LE

Character Features: HB

Cursor Movement: CM, CK, NC, NL, NW, NSC,

BI, BSC, BD, SU, SD, JM

Block Editing Tools: HL, AB, MV, CP, DE, FC,

MR, HA, DF, TM

Search and Replace: FO, BK, CS, WW, AS, WS,

WR, PS, FR, VY

Undo Utility: UD

PRINTER SUPPORT

NP 20, UP, PT, PW, PS, OF

FILE HANDLING

Document File Strategy: LM, DF, CT, OTH

Document Saving: AB, MS, EN, ER, EL

DOS Executives: DR, ADK, ADR

File Import and Export: IM, IAP, EAP

SPECIAL FEATURES

Other: KM, MMD, FF, FE, AI, AT, GR, DV, TV

Executive Writer's user-friendliness, as illustrated by the function-key menu, belies its many professional features.

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CIRCLE 150 ON READER SERVICE CARD



4585 Scotts Valley Drive, Scotts Valley CA 95066
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My computer's name and model is:

The disk size I use is ☐ 31K ☐ 51K ☐ 6K

Name

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EXPANDED FACT FILE

Final Draft 3

CYMA McGraw-Hill
2160 E. Brown Rd.
Mesa, AZ 85203
(602) 835-8880 (800) 292-CYMA
Requires: 256K RAM (128K RAM without thesaurus),
DOS 2.0 or later, two disk drives,
to use thesaurus one hard disk is recommended.

List Price: \$395



CIRCLE 674 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:1, RM:132, AJ
Line Spacing: LS:1-3
Character Format: VP, PS, PW, BO, UL, SP,
SB, ST, CB, ASC
Page Formats: LIT, LLB, HT, HL, HR, FL,
FR, PL:1, PW:132
Tabulation Format: TL, TR
Header/Footer: SL, OF, UP, AN, RN, PA, THF

EDITING SCREEN DISPLAYS

Nontext Display: RC, CC, LN, PN, DF
Text Display: SL:23, SC:80, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, DA
Deletion Formats: CD, WE, LE, LB, DA, DE,
DB
Character Features: HH, HB
Cursor Movement: CM, CK, NC, NL, NW,
NSC, BL, BSC, BD, SU, SD, SL, SR, JP, JM
Block Editing Tools: AB, LN, CE, BC, DO,
MV, CP, DE, AR, DF
Search and Replace: FO, CI, AS, WS, WR, VY
Undo Utility: UD

PRINTER SUPPORT

NP:1, UP, PT, CH, PW, PS, AE

FILE HANDLING

Document File Strategy: FD, LM, DF, CI, CS,
OTH, DS:32767
Document Savings: AB, MS, AT, AD, EN, ER,
EL
DOS Facilities: DR, MU, CDK, ADK, SDR
File Import and Export: IM, IAL, IWS, EAL

SPECIAL FEATURES

Spelling Checker: WD:80000, UG, US, DB,
ED, IC, BG, MR, IM, AD, QK, QL
Other: CS, MM, FP, FS, FF, AI, AT, GR, TM,
TH

Final Draft's spelling checker and thesaurus enable the user to locate definitions and synonyms easily.

chain. Perhaps the best thing about this program is its price, which is low enough to entice you to buy *Executive Filer* as well—I suggest that you buy the pair.

—Phil Wiswell

FINAL DRAFT 3

Final Draft 3 is an easy-to-master program with a hint of the strength of the top professional word processors. It's easy to handle, with enough power for day-to-day use. But just as you don't expect the performance of the Boston Pops from a high school orchestra, you won't get great print formatting and other high-end features from *Final Draft*.

Still, the program packs a surprising amount of power into a handful of commands. In addition to the word processing basics, it offers a spelling checker, a thesaurus, automatic index generation, print merge, limited footnote handling, and text macros. *Final Draft* also has a feature likely to be loved by legal secretaries and editors—you can keep track of successive revisions to a document and mark them on your printed copy.

When you fire up *Final Draft*, you see its main menu. If you want to see a list of your files before you get down to work, the program will display them on another version of the main menu. Then you simply move the highlight to the document you want to work with and select an option, such as revising or printing.

The program's editor gives you a clean screen, with a single status line and a ruler line at the top of the screen. The editor uses two distinct modes: insert mode for entering text and command mode for doing just about everything else. Command mode is *Final Draft*'s home base. You return to it from any function, including insert mode, by pressing the Esc key twice. If you're in doubt about the mode of the moment, you can glance at the upper left of the screen, where it is displayed.

This sharp distinction between modes may help to make *Final Draft* easy to learn, but it can get in the way of an experienced user. Even after I was familiar with the program, I was forever tripping over modes, forgetting to go back to command mode when I had finished inserting text and wanted to delete a word or two. There are some exceptions to the rule. You can bypass command mode and use Ctrl key combinations to enter 11 commands directly from insert mode. It's a step in the right direction, but I would prefer to issue all commands from insert mode.

One advantage of this mode-switching approach is that your text always stays "clean." *Final Draft* readjusts your current paragraph to match the current margins whenever you go to command mode, so you only have to manually realign text to change margins or spacing.

In command mode, there is no menu to jog your memory if you forget that F is for "find" or V is for "vertical page format." But since there are only 39 mostly mne-

text—it will also keep track of spreadsheet data or graphics from 1-2-3, Paperback Software's *Number Works*, and other programs. So, you can pull together information for a report quickly by searching through the "file cabinet" for text, graphics, and data that pertain to your criteria. For example, you can see to all your information concerning several keyword subjects—such as everything about IBM local area networks in use by insurance companies in California during the winter of 1985—then cut and paste it into *Executive Writer*.

Executive Writer is an easily learned professional word processor and is powerful enough for most jobs that don't require a lot of fancy margin changes, certainly the weak link in what is an otherwise strong

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"Give me the picture." "Show me what happens when we shift 11% of Nebraska's inventory to the new store in Hawaii."

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CIRCLE 147 ON READER SERVICE CARD



monic commands, it doesn't take long to commit them all to memory. If you misplace the program's command summary card, you can press the help key, which will summon a list of the program's commands. From the help screen, you can also get a detailed explanation of a command on request.

My favorite aspect of *Final Draft's* editor is its speed. It scrolls from screen to screen in less than a second, and if the document fits entirely into available RAM, jumping from the beginning to the end of the document is instantaneous. It also re-adjusts text quickly, so that you can go right on to the next command. I also like the automatic save feature, which will write your document to disk at intervals that you specify, protecting your work from a possible system failure.

A NOVEL BLOCK MOVE METHOD

I was less taken with *Final Draft's* novel method for moving blocks of text. The program lets you use alphabetic labels to mark locations in your text. The labels are not visible on-screen, but you can find each one using the program's "go to" command. You can use up to 26 active labels at a time; the program does not highlight the text between labels. To move, copy, or delete a block of text, you specify the beginning and ending of labels. If you work on lengthy documents, these labels can be a quick way to jump around the text as long as you can remember where you put them. My own preference is for fewer, more visible markers that are easier to keep your eyes on.

Final Draft's on-disk thesaurus, usable only on hard disk systems, is a handy tool for professional users. Just like a book thesaurus, it presents you with synonyms and antonyms for any word in your text. Just put your cursor on the word and invoke the thesaurus with a single keystroke. The program's spelling checker also gets high marks. You invoke it from the main menu to check a document file, and it shows all suspected errors in context. Its 80,000 word dictionary is large enough so that its suspect words are usually bona fide errors, and its suggested corrections are usually on the mark.

While *Final Draft* offers a capable editor, it comes up short in print formatting.

Format settings, such as margins and spacing, apply to the entire document. If you want a single-spaced paragraph in your double-spaced document, you must take care not to inadvertently reformat the single-spaced section when you turn the double-spacing back on. You cannot specify headers and footers anywhere you please. To enter a header or a footer you have to first insert a "hard" page break that the system will not override if you add or delete text.

DO-IT-YOURSELF PRINTING Printer support is of the do-it-yourself variety. The program offers a universal printer driver that supports only backspacing and boldfacing. If you want anything fancier, you have to use *Final Draft's* installation program and type in your printer's control codes when prompted. This method assigns printer control codes to some built-in commands and to six function keys. Pressing an assigned function key inserts a control code into your text. And if you assign printer codes to built-in commands, you can invoke features like near-letter-quality mode when printing.

I reviewed a preproduction version of *Final Draft* that had only limited documentation. Still, the program was easy to set up on my XT using the manual from an earlier version. The tutorial, which followed the reference section, was too brief to be really useful. However, a CYMA/McGraw-Hill spokeswoman said that the program would have all new documentation by the time you read this.

A serious omission is the program's lack of support for DOS directories. This is especially puzzling since *Final Draft* requires a hard disk to be fully functional (you can use it with floppies if you omit the thesaurus). Also missing are a "print to disk" option and print-spooling support.

Final Draft straddles the line between personal and professional word processors. Like the personal word processors, it's easy to learn, yet its advanced features and high price put it in the professional league. But overall, its lack of print formatting power and limited printer support keep it from winning any head-to-head playoffs with the market-leading professional word processors.

—Dara Pearlman

THE FINALWORD 2.0

The *FinalWord 2.0* is one of the most powerful, sophisticated word processors available for the IBM PC. Designed for people who aren't satisfied with fixed command structures or standard keyboard layout, *FinalWord* comes with an internal programming language that lets you set up your own exotic editing and formatting commands. Within the broad limits of the program's basic structure, you can actually use *FinalWord* to write your own word processor.

If you don't want to learn a new programming language, you can use *FinalWord* just as it comes out of the box. You need to read only the first third of the 500-page manual to master its basic command set. That will teach you almost all of *FinalWord's* advanced features: automatic indexing and cross referencing, odd and even headers and footers, search and replace with wildcards, key reassignments, multiple windows, keyboard macros, spelling checker, and so forth. But if you want to design your own commands, you'll have to spend some time at the back of the manual, figuring out *FinalWord's* own peculiar programming structure and syntax.

PROGRAMMING THE EDITOR The easiest customization step is to attach standard commands to the keys of your choice. You can use the function keys unshifted or in Shift, Alt, and Ctrl modes and use the rest of the keyboard in Alt, Ctrl, and Esc modes for all commands. That means that in addition to 40 function key possibilities, you have three different choices for mnemonic letter-key commands. For example, if you decide that Ctrl-F is the best keystroke combination for the find-a-file command, Esc-F and Alt-F are still available for the forward-search or footnote commands.

All of *FinalWord's* commands are contained in ASCII files on the program disk. To attach a command to a specific key, just read the ASCII file into the *FinalWord* editor. Then find the command and move it to the designator of the key to which you want to attach it.

The commands in the ASCII file are ex-

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So how does it work? Let's say the word you meant to type was "RIGHT," but you accidentally typed "RIKGT," which is wrong. What happens then?

You immediately hear a 'beep,' so you know there was a boo-boo. You instantly see a window, that doesn't list "RIGHT" but it does list "RIGHT" and its sound-alike words. So your screen looks like this:



So you move your cursor to "A," which is the right "right," hit Return and the spelling mistake is instantly fixed. And the program you were working on has continued to run while you did a little spelling sidetrup with Turbo Lighting. (If you'd rather not remember your Spelling guide at school, the book might make you run, but you can choose the "whole page" option. Which means that when you finish writing the entire page, any spelling mistakes will be highlighted. No go in and straighten things out straight away.)

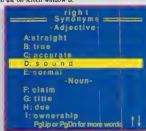
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Your documents, letter, report, spreadsheet is word perfect and no one ever knows that you can't spell for beans.

Abstract

Turbo Lightning does a lot more than spell

"right" right, it also gives you instant synonyms. Because you also have Turbo Lightning's Random House Thesaurus at your fingertips, you can really get to know your "right's." So back to the word "right," but this time in the thesaurus. Type in "Right" and what you see in the on-screen window is:



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pressed in a peculiar *FinalWord* language. The command that moves the cursor to the end of a sentence, for example, is: `past isgray to issent to isgray`. You don't have to understand this gibberish in order to attach it to any key or key combination allowed by the IBM PC. But what if you wanted to change the command so that instead of sending the cursor to the space after the period, it sends it to the period itself? Or to the first letter in the next sentence? Then you'd have to learn what the gibberish means and modify it.

The *FinalWord* manual spends 50 pages on this command language and

could easily have spent another 50. The different elements of a command can pass arguments back and forth, make if-then decisions, set and reset flags, declare variables, prompt for keyboard input, and even go out to DOS and call other programs. This is complex stuff and not to be tackled by the timid. However, once you've mastered this language, you can create practically an unlimited number of commands. And you can even build pop-up menus to remind you of what your custom-designed commands do.

FinalWord's text-formatting capabilities are just as flexible, though they also re-

quire some effort to learn. *FinalWord* has made a definite commitment to text-embedded formatting commands rather than on-screen formatting. This is a choice that profoundly affects the program's entire personality.

Formatting commands begin with the at sign (*@*) and enclose text with delimiters. For example, *@i* tells *FinalWord* to print in italics. *@f* produces footnotes, *@a* appends a new section in an appendix, *@b* produces boldfaced type, *@+* superscripts type, and *@-* subscript it. Believe it or not, *FinalWord* has several hundred at-sign commands. If you don't like them, you can redesign, rename, or combine them, or build your own from scratch.

If, for example, you want to specify that a chunk of text should be centered, justified, and printed in bold italics with 2-inch margins on either side, you could design and name an at sign (*@*) command to do it. Simply include it in the ASCII file that contains formatting commands, and it will take effect the next time you print a document.

Some of the more sophisticated *@* commands allow you to cross-reference occurrences of words and phrases backward or forward. Thus, as you write your text, you can refer to an idea by chapter, section, and page even if you haven't written that part yet. So long as you give the idea the right identifying tag when you actually do write about it later in the document, *FinalWord* will fill in the earlier reference details (chapter, section, and page number) when it prints the document.

To do this, *FinalWord* has to make a complete pass through a document before it prints. Otherwise it couldn't include a page reference to something that is tagged later in the text. This all happens in memory, but it takes time. A 1,200-word file takes 20 seconds to format before it will print. *FinalWord* offers a quick, unformatted print option, but this ignores all the *@* commands and prints text more or less as it appears on the screen. *FinalWord's* formatting delay will annoy some users, but it takes time to process hundreds of formatting commands.

Another disadvantage of off-screen formatting is that the printed results of the trickier *@* commands may not be what



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CIRCLE 663 ON READER SERVICE CARD

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Line Spacing: LS:1-66, LF, SB, SA, KP, KN,

WC, OC

Character Format: VP, PS, AP, PW, BO, IT,

UL, SP, SB, ST, CB, ASC, CT

Page Format: LIT, LLL, GL, GR, HT, HL,

HR, FB, FL, FR, MP

Tabulation Format: TL, TR, TD, FC

Header/Footer: SL, UM, DF, UP, AN, RN, PA,

FR, PO, THF

Multiple Column: TC, CP:6, GW

EDITING SCREEN DISPLAYS

Nontext Display: CC, LN, DF, DK, DR

Text Display: SL:24, SC:3000, WA, WD, FJ,

ST

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ED, DA, CA

Deletion Features: CD, WA, WE, WB, LA, LE,

LB, SA, SE, SB, PA, PE, PB, DA, DE, DB

Character Features: AC, HH, SH, HB

Cursor Movement: CK, SD, MS, NC, NL, NW,

NS, NP, NSC, BL, BS, BP, BSC, BD, SU,

SD, SL, SR, JL, JM, CK

Block Editing Tools: HL, AL, WD, LN, SE,

PH, CE, BC, MV, CP, DE, AR, HA, AW,

HF, FN

Search and Replace: FO, BK, CS, CI, CP, WW,

AS, WS, WR, FS, FR, VY

Undo Utility: UD

PRINTER SUPPORT

UP, PT, CH, PW, PS, DF, AE

FILE HANDLING

Document File Strategy: LM, DF, CT, ASC,

DS:500

Document Saving: NB, MS, AT, AD, EN, ER,

JN

DOS Facilities: DR, MU, CDK, ADK, CDR,

ADR

File Import and Export: IM, IAL, IIBM,

IWNG, IWS, EAL

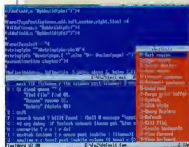
SPECIAL FEATURES

Spelling Checker: WD:7000, SW, ED, IC,

BG, MR, IM, AD, QK

Other: KM, CK, SF, FP, FS, FE, FF, AI, AT,

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By calling up The FinalWord's "shortcuts" menu, users can speed up their word processing considerably. Note that the above screen contains two windows.

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What the software program and its Report Generator do for you before you go — and when you get back.

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- Prints out your Calendar, Appointments, Addresses, Phone Directory, and whatever other information you need from your data files.

It can also:

- Sort your address files by name, zip code, or company name
- Print mailing labels
- Print information selectively
- Search files for existing addresses or calendar engagements

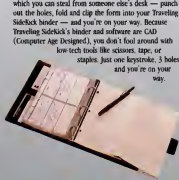
When you return:

- Lets you quickly and easily enter all the new names and numbers, facts and figures you learned while you were away — into your SideKick data files.
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govern alignment style (ragged left, ragged right, centered, or justified), indentation (first line or entire paragraph, left or right, positive or negative), line spacing, line spacing between paragraphs, and other related issues. Division formatting commands define overall page specifications including margins, page length, position of headers and footers, starting page number, and so on. Division formats may be changed within a document, but they'll generally be altered less often than character or paragraph formats.

While the terminology of this scheme is unusual (and hence may be a little intimidating to some beginning users), the scheme itself has the great virtue of laying out all formatting matters logically under a single hat. Given the fact that most word processing programs handle formatting commands in such a garbled mix of ways—dot commands for some things, print parameter or menu selections for others, marker characters inserted into text for still others, and so on—the organization of these issues in *Microsoft Word* is a notable accomplishment by itself.

But that's only the beginning. What really makes *Microsoft Word* such a comprehensive formatting tool is the variety of ways in which its formatting options can be exercised.

All formatting commands can be selected from the format menu. As an alternative, the most commonly used character and paragraph formatting commands can be issued via Alt keystrokes. This "speed formatting" procedure has the advantages of requiring fewer motions and not taking you temporarily out of edit mode. And all formatting commands can be automated by means of what *Microsoft Word* calls "Style Sheets."

A Style Sheet is simply an assemblage of formatting macros. Any repetitively used formatting sequence, such as a switch to boldface text in caps and small caps for a certain level of heading or a particular set of margin settings, can be encapsulated in a Style Sheet entry and subsequently executed by means of one or two Alt keystrokes (or from a menu of Style Sheet entries, if you prefer). When you create a Style Sheet, you get to provide a description of the purpose for each entry, so you don't need to worry about forgetting how

things have been set up. Most important, the Style Sheet is an independent entity that can be attached at any time to any document, so you can make one Style Sheet for memos, another for external correspondence, a third for formal papers, a fourth for personal letters, and so on without limit.

Style Sheets reduce keystrokes and simplify the standardization of documents. Perhaps most important, they make it possible for you to change your mind. If your company revamps a standard document style, for example, you can adjust existing

■ What's unique about Microsoft Word is its comprehensive, well-thought-out approach to the formatting of text.

documents appropriately by altering the Style Sheets from which they were generated. You don't have to make changes locally in each document.

Typesetting systems have had this type of what-if capability for well over a decade—it's about time someone introduced the idea into word processing software.

A WORD ABOUT TYPESETTING

There's another way in which *Microsoft Word* seems to be aimed at closing the gap between word processing technology and typesetting technology. When you tell the program what printer you'll be using, it creates a menu of fonts available on that printer and presents that menu to you on request (as part of the Format Character command). In this context, the fonts are identified in the terminology used by the printer manufacturer—Elite, Pica, and so on. But, internally, *Microsoft Word* translates those vendor-specific font names to generic designations, such as Modern, Roman, and so on. If you then switch to a different printer—even an altogether different printer technology—the program can

retranslate its generic font specifications into the most appropriate choices for the new printer without requiring any involvement on your part.

One clear virtue of this system is that if a document you're creating is destined ultimately for output on a near-typeset-quality printer (such as the Hewlett-Packard Laserjet or the Apple LaserWriter), you can assign that printer to it from the start and make your font selections from its high-quality repertoire. If you need dot matrix draft-quality printouts along the way, you can just change the printer designation temporarily and let the program handle all the necessary translations.

Along with all the pleasures in *Microsoft Word* come a few frustrations as well.

If you like the freedom to move software on and off your hard disk, you may not be comfortable with *Microsoft Word*'s copy-protection scheme. You're allowed to install the program on your fixed disk once only, and you can't "deinstall" it. (To be more exact, you can install it once from the program disk and once from the supplied backup disk; but the documentation doesn't tell you that.)

A more serious frustration has to do with screen speed. In graphics mode on an 8088-based system, *Microsoft Word* is a touch slow because it has so much to do. If you work on a standard PC with an IBM Color/Graphics Adapter and you don't need all the sophistication of *Microsoft Word*, be sure to try it out before you decide to buy it.

This is clearly a product aimed at the future. On an AT or a Compaq 286, *Microsoft Word* is no slouch at all, in spite of everything that's happening behind the screen. And *Microsoft Word* running on an AT equipped with an EGA, an ECD, and an 8.5-MHz clock crystal is something you just have to see to appreciate.

I said at the top that a short review couldn't do justice to *Microsoft Word*. Here are some other features about which space forbids elaboration: the slickest, most well-written on-screen tutorial in the industry, with a manual of comparable quality; a mail-merge facility complete with conditional constructs; an excellent spelling-checker adapted from Oasis Systems' *The Word Plus*; an Undo command that restores deletions—even typeover de-



lections—to the context from which they were taken, as well as reversing all other kinds of editing maneuvers; a sophisticated memory management scheme that keeps editing changes only in RAM and merges those changes with your disk file when you're through editing (giving you backup protection while you edit, without wasting disk space).

Microsoft Word is a product you can grow with. As you live with it, you'll be discovering new capabilities for a long time. And as new hardware comes along, you'll probably find that the program already knows how to take advantage of it.—Craig Stinson

MY WORD! 1.71

If the idea of buying a professional-level word processor for \$35 seems like wishful thinking, then you obviously haven't seen *My Word! 1.71* from T.N.T. Software Inc. With a name like T.N.T., the company ought to be using the motto "More bang for the buck," and with this program, it certainly could.

In command structure and on-screen text format, *My Word!* closely emulates *WordStar*. But while *My Word!* leaves out some of *WordStar*'s more-advanced, but less-often-used, features such as backward search, it modifies the way some *WordStar* commands work. Also, *My Word!* adds a few features of its own, not the least of which is noticeably better speed on most functions. In fact, *WordStar* users will immediately feel perfectly comfortable with *My Word!*. It's not just that the programs share many of the same commands; they also share some important aspects of design philosophy.

The *My Word!* manual says that most (not all) users would rather not move their hands from the keyboard when editing, not even to use the arrow keys; the magic diamond—that is, E, X, S, and D, as four points of the compass for up, down, left, and right—is much faster for touch-typists to use than a mouse or commands like U (up) and D (down).

For those who disagree, *My Word!* makes use of the PC's cursor keypad, in-



EXPANDED FACT FILE

My Word! 1.71

TNT Software Inc.
36069 Hainesville Rd.
Round Lake, IL 60073
(312) 223-8595

List Price: \$35 (spelling checker is \$25)

Requires: 128K RAM, DOS 1.1 or later (but not 1.25), one disk drive (special order disk needed).

CIRCLE 671 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM

Margin: RM:255

Line Spacing: LS:1, LF, OC

Character Formats: VP, PS, PW, BO, IT, UL,

SP, SB, ST, CB, ASC, CT

Page Formats: LIT, LLB, GL, GR, HT, FB,

MP

Tabulation Format: TL

Header/Footer: SL, UM, OF, UP, AN, RN, PA,

THF

Multiple Columns: TC, NC, UC, GW

EDITING SCREEN DISPLAYS

Nontext Editing: PC, IT, ED, IM

Text Display: SL:23, SC:78, WA

TEXT ENTRY AND EDITING

Typing/Editing: PC, IT, ED, IM

Deletion Forward: CD, WE, LA, LE, LB

Character Features: HH

Cursor Movement: CM, CK, SD, NC, NL, NW,

NP, BL, BSC, BD, SU, SD, JL

Block Editing Tools: HL, AB, CP, DE, MR, DP

Search and Replace: FO, CS, WW, AS, FS, FR,

VY

Undo Utility: UD

PRINTER SUPPORT

UP, PT, CH, PW, PS, OF

FILE HANDLING

Document File Strategy: FD, CT, ASC

Document Savings: NB, MS, EN, ER, EA, EL
DOS Facilities: DR, MU, CDK, ADK, SDR
File Import and Export: IM, IAP, IWS, EAL,
EWS

SPECIAL FEATURES

Spelling Checker: WD:27600, UG, US, ED,

MD, IC, MR, IM, AD, MM, QK

Other: KM, CS, MM, MMD, FL, SC, MS, MA

FILE	FOR	MY WORD! 1.71	DESCRIPTION	FILE	DESCRIPTION	FILE	DESCRIPTION
1	Get help	10	Change name of current disk file	20	Change name of current disk file	30	Change name of current disk file
2	Save file	11	Change name of current disk file	21	Change name of current disk file	31	Change name of current disk file
3	Open file	12	Change name of current disk file	22	Change name of current disk file	32	Change name of current disk file
4	Close file	13	Change name of current disk file	23	Change name of current disk file	33	Change name of current disk file
5	Change the name of file in memory	14	Change name of current disk file	24	Change name of current disk file	34	Change name of current disk file
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9	Change the name of file in memory	18	Change name of current disk file	28	Change name of current disk file	38	Change name of current disk file
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28	Change the name of file in memory	37	Change name of current disk file	47	Change name of current disk file	57	Change name of current disk file
29	Change the name of file in memory	38	Change name of current disk file	48	Change name of current disk file	58	Change name of current disk file
30	Change the name of file in memory	39	Change name of current disk file	49	Change name of current disk file	59	Change name of current disk file
31	Change the name of file in memory	40	Change name of current disk file	50	Change name of current disk file	60	Change name of current disk file
32	Change the name of file in memory	41	Change name of current disk file	51	Change name of current disk file	61	Change name of current disk file
33	Change the name of file in memory	42	Change name of current disk file	52	Change name of current disk file	62	Change name of current disk file
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39	Change the name of file in memory	48	Change name of current disk file	58	Change name of current disk file	68	Change name of current disk file
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43	Change the name of file in memory	52	Change name of current disk file	62	Change name of current disk file	72	Change name of current disk file
44	Change the name of file in memory	53	Change name of current disk file	63	Change name of current disk file	73	Change name of current disk file
45	Change the name of file in memory	54	Change name of current disk file	64	Change name of current disk file	74	Change name of current disk file
46	Change the name of file in memory	55	Change name of current disk file	65	Change name of current disk file	75	Change name of current disk file
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52	Change the name of file in memory	61	Change name of current disk file	71	Change name of current disk file	81	Change name of current disk file
53	Change the name of file in memory	62	Change name of current disk file	72	Change name of current disk file	82	Change name of current disk file
54	Change the name of file in memory	63	Change name of current disk file	73	Change name of current disk file	83	Change name of current disk file
55	Change the name of file in memory	64	Change name of current disk file	74	Change name of current disk file	84	Change name of current disk file
56	Change the name of file in memory	65	Change name of current disk file	75	Change name of current disk file	85	Change name of current disk file
57	Change the name of file in memory	66	Change name of current disk file	76	Change name of current disk file	86	Change name of current disk file
58	Change the name of file in memory	67	Change name of current disk file	77	Change name of current disk file	87	Change name of current disk file
59	Change the name of file in memory	68	Change name of current disk file	78	Change name of current disk file	88	Change name of current disk file
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64	Change the name of file in memory	73	Change name of current disk file	83	Change name of current disk file	93	Change name of current disk file
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67	Change the name of file in memory	76	Change name of current disk file	86	Change name of current disk file	96	Change name of current disk file
68	Change the name of file in memory	77	Change name of current disk file	87	Change name of current disk file	97	Change name of current disk file
69	Change the name of file in memory	78	Change name of current disk file	88	Change name of current disk file	98	Change name of current disk file
70	Change the name of file in memory	79	Change name of current disk file	89	Change name of current disk file	99	Change name of current disk file
71	Change the name of file in memory	80	Change name of current disk file	90	Change name of current disk file	100	Change name of current disk file

My Word!'s help menu defines all of the available function- and control-key definitions on a single screen.

cluding the Cursor up, Cursor down, Home, and End keys. It also puts common commands, such as Save and Rename, on the function keys. (Most of these are also available from the typing keys using the *WordStar* commands if you happen to know them.)

WHAT'S ON THE MENU? One place where *My Word!* differs drastically from *WordStar* is in its approach to menus and help screens. Unlike *WordStar*, which has adjustable help levels and its context-sensitive help screens that can be turned off when you no longer need them, *My Word!* has only one help screen. If you hit F1 while editing, then the program will present you with an overwhelming screenful of commands. You have to find the command you need and then hit F2 to return to

editing to use the command.

On the other hand, *My Word!'s* main menu offers just four choices: Edit, Print, Change Drive, and Exit. This makes the program so clean and simple to use that I can't imagine anyone will be intimidated by it.

One important aid lacking with *My Word!* is an on-screen list of dot commands. As with *WordStar*, the *My Word!* dot commands handle many formatting functions. Most of these are easy enough to remember (MB for margin bottom and MT for margin top), but when you're first learning the program or trying to remember a command that you don't use too often, you'd better know exactly where you put the manual.

The manual is written in straightforward, conversational English, which

makes it suitable for even a first-time computer user. One example: After guiding you through making a backup copy of the program, the instructions read, "Do not put your original *My Word!* disk in drive A. Your machine will not start up correctly and will ask you to insert a system disk. The copies you just made will be system disks and can be used for start-up."

An even nicer touch is that the tutorial section of the manual anticipates and explains most problems a new user might run into. This section covers such details as device time-out errors on printers and how to eliminate them.

MNEMONIC DEVICES Also very much appreciated is a whole series of mnemonics that you won't find in *WordStar*'s documentation. *WordStar*'s obscure B command for paragraph reformatting is much easier to remember with *My Word!*'s "Bind text" mnemonic. Similarly, the QA command for search and replace is much easier to remember as "Quick, Alter" text. Given *My Word!*'s \$35 price, *WordStar* users might want to buy this program just for the manual.

Other features worth noting in *My Word!* include an undo command, a built-in calculator, and a sorting capability.

The sort feature is a joy to use on columnar material. Simply mark the first and last items in a column and then enter Alt-D for sorting in descending order or Alt-A for sorting in ascending order. Given a table of two or more columns, you can sort the entire table on any column.

Better than nice is the macro feature. According to the manual, *My Word!* will temporarily store up to 32,767 keystrokes in a single macro and will save up to 255 keystrokes to disk for each macro. The program will store as many sets of macros on disk as needed and can read or write a macro file at any time while editing.

One other feature worth mentioning is the way the program uses the full IBM character set. Enter Alt-P, and everything you type after that will be high-order characters. Enter another Alt-P, and you're back to typing normal ASCII characters. If you're looking for a poor man's scientific or foreign-language word processor, *My Word!* may do the job.

My Word! can use the IBM PC's high-

order characters because it uses straight ASCII files rather than using the high-order character bit for its own purposes, the way *WordStar* does. This means that *My Word!* cannot read *WordStar* files without converting them to ASCII first. Significantly, the program comes with utility modules for converting files in both directions. Other utilities include a word-counting program and a customization program for setting colors and other defaults.

One comment on speed: When it comes to things like search-and-replace operations, *My Word!* is fast—T.N.T. Software claims eight to ten times faster than *WordStar* even when *WordStar* is told to speed things up by not updating the screen. They're probably right; my tests showed no discernible delay between starting a global search and replace and being done.

But be aware that *My Word!* gets its speed in large part by holding the entire file in memory at once. Files can be chained together with the program's Link File command, but the largest individual file is about 50K bytes even with a 640K-byte machine.

Also be forewarned that the optional integrated spelling checker is slow—so slow that I can read and catch typos on-screen

■ If you're looking for a poor man's scientific or foreign-language word processor, *My Word!* may do the job.

faster than it can. It's better than nothing, I suppose, but I would buy another spelling checker to go with *My Word!*

Another important problem crops up with color monitors. *My Word!* can use colors, but it is not really designed for a color monitor. One sign of this is the snow that shows up on-screen with each character typed. (You can get rid of the snow at the expense of speed by using a slightly modified version of the program that

comes on the same disk.) Another is the black border that you wind up with regardless of the color setting.

My Word! has other limitations too, like not showing page breaks. But, overall, *My Word!* has more going for it than against it, including a policy of charging just \$5 for updates. Whatever you do, don't overlook this one just because it costs so little. In this case, the description "cheap" does not refer to quality.—M. David Stone

NEWWORD 2.15

At first glance, *NewWord 2.15* may look like an old friend. It's almost a dead ringer for *WordStar*, MicroPro's aging but still powerful word processing queen.

The former MicroPro employees who created *NewWord* set out to create a "better *WordStar*," and in many ways they succeeded. *NewWord* packs most of the power of *WordStar Professional*, which retails for \$495, into a single \$249 package. And it includes a number of extra features all its own.

With *NewWord* you get a *WordStar*-like word processing program along with a print-merge facility, paralleling MicroPro's *MailMerge*, that manages boilerplate text and can produce customized mailings. You also get *The Word Plus 1.2*, a spelling checker from Oasis Systems that normally retails for \$150.

NewWord's opening menu offers file management options and displays the contents of your default disk or directory. You can get down to serious writing by choosing to edit a "document," *NewWord!* *WordStar*'s term for a file that includes word wrap and other formatting codes. *NewWord* uses *WordStar*'s document file structure, so that the two programs can read each other's files. If you prefer straight ASCII files for program code or for input to other programs, you can work with a "nondocument" and do without word wrap.

In addition to the usual DOS-style file utilities, *NewWord* offers the ability to "protect" a file, making its contents unalterable. Once protected, a file cannot be



changed or erased, even by a DOS command or by another program. If a number of people use the same boilerplate, this is a simple way to ensure that the common text stays intact.

Once you begin editing, *NewWord* presents you with an 8-line menu of editing commands and a 15-line window for your text. When you become familiar with the main editing commands, you can turn off the edit menu and the ruler line and use the full screen for your text.

Just like *WordStar*, *NewWord* uses the Ctrl key in combination with letters to call up specialized menus that guide you through functions like cutting and pasting blocks of text and centering headings. Also like *WordStar*, *NewWord* won't hold you back if you type the commands without waiting for the menu prompts. Enter the commands quickly enough, and the menus won't appear at all.

In most cases, *NewWord's* commands are identical to *WordStar's*, although there are a few exceptions to be aware of. For instance, *NewWord* uses the command sequence Ctrl-Q-B to realign the text from the cursor to the end of the file. *WordStar* uses that command to find the beginning of a block.

While it won't win the word processing Indy 500, *NewWord* is fast even on a floppy-disk-based PC. It takes about a second to scroll from screen to screen, and for documents that can fit into memory (19 pages or fewer), *NewWord* can jump from front to back in less than 5 seconds. For larger documents that use disk-based spill files, scrolling can take much longer. If you're a rapid typist, you'll find that *NewWord* sometimes lags a word or two behind nimble fingers, especially when it wraps around to a new line.

UNFIT TO PRINT *NewWord* is both more and less than a *WordStar* clone. In the less department, the most serious deficiency is lack of support for print spooling. *NewWord* won't let you go on writing while it's printing, and it won't even create a print file on disk that you can use with the DOS PRINT command. If you are stuck with a slow printer and lack the extra memory for a background print buffer, this deficiency alone might induce you to choose another word processor.

Happily, there's lots to talk about in the more department. *NewWord* has an undo command that brings back your last deletion, which proves to be a real boon if you hit Ctrl-Y (delete line) when you really want Ctrl-T (delete word). *NewWord* stores deleted text in a 100-character buffer, but if you like the security of being able to undelete large blocks of text, you can use a customization program for expanding the storage buffer.

Through the use of embedded ruler lines and margin commands that it acts on while you're editing, *NewWord* lets you set margins and tabs for small sections of text without affecting the rest of the document. Its embedded print control commands (dot commands) are able to change fonts on dot matrix printers. And it offers

microjustification, even on dot matrix printers, that makes fully justified text look less choppy.

This last feature can be a mixed blessing. On Epson printers the microjustification makes the printhead jump back and forth at almost every word, greatly slowing down the printing. When I ran *NewWord* on an Epson FX-85, the microjustification also wreaked havoc on the printer's near-letter-quality text. Fortunately, it's easy to turn off the microjustification, and Epson owners will probably want to do without it.

NewWord's merge print facility, modeled after MicroPro's *MailMerge* program, is a powerful tool that goes beyond the usual "fill in the blank" merge print program. It includes a simple program-



EXPANDED FACT FILE

NewWord 2.15

New Star Software Inc.
1601 Oak Park Blvd.
Pleasant Hill, CA 94523
(800) 932-2526
(800) 544-3377 (in Calif.)

List Price: \$249



Requires: 64K RAM, DOS 1.1 or later, one disk drive (but two disk drives recommended).

CIRCLE 861 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:1, RM:255, AI
Line Spacing: LS:1-9, LF, OC
Character Formats: VP, PW, BO, IT, UL, SP, SB, ST, CB, ASC
Page Formats: LIT, LLB, GL, GR, LP:255, HT, PL:1, PW:255
Tabulation Formats: TL, TR, TC, DC
Header/Footer: SL, UM, OF, UP, AN, RN, PA, THF
Multiple Columns: NC, UC

EDITING SCREEN DISPLAYS

Normal Display: RO, CC, LN, PN, DF, DK
Text Display: SL:24, SC:80, WA, WD, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, IM
Deletion Commands: CD, WE, LA, LE, LB, DA
Character Features: HH, SH, HB
Cursor Movement: CM, CK, SD, NC, NL, NW, NSC, BL, BSC, BD, SU, SD, SL, SR, JL, JP
Block Editing Tools: HL, AB, CO, MV, CP, DE, MR, DF, HF
Search and Replace: FO, BK, CS, CI, WW, AS, WS, WR, FS, FR, VY
Undo Utility: UD

PRINTER SUPPORT

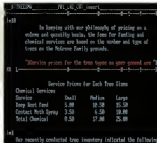
NP:31, PT, CH, PW, PS, OF, AE

FILE HANDLING

Document File Strategy: FD, LM, DF, CT, OTH
Document Saving: AB, DB, EN, ER, EL
DOS Facilities: DR, CDK, ADK, CDR
File Import and Export: IM, IAP, IWS, EAL, EWS

SPECIAL FEATURES

Spelling Checker: WD:45000, UG, UD, US, ED, IC, BG, MR, IM, AD, MM
Others: CS, MM, HS



for recently created text inventory initiated the following:
NewWord 2.15's text-editing screen resembles that of WordStar in its layout and use of dot commands.

ming language, complete with IF and ELSE statements, that can select part of your mailing list for processing. For example, you could print letters for businesses in certain cities or with certain ZIP codes. If you use a lot of boilerplate, you can write programs to automatically select the right paragraphs.

The spelling checker that comes with *NewWord*, *The Word Plus 1.2*, is one of the better standalone spelling checkers around. *The Word Plus 1.2* checks your stored document against its 45,000 word dictionary, displaying the words it can't find in alphabetical order. A View in Context command allows you to see the line of text where the word appears. A Lookup command tells the program to suggest the proper spelling. In addition to its spell-checking talents, *The Word Plus 1.2* can help you solve crossword puzzles and anagrams, count the words in a document, and locate homonyms.

NewWord's documentation and tutorial are good but not great. The written tutorial takes you through most of the program's features at a comfortable pace and has a well-designed reference section that describes the features in alphabetical order. Unfortunately, some features are inadequately explained. For example, you can embed a command in the text to change the line spacing when you print. This command is great for writers who like to compose in single-space mode and print with double spacing. But the manual doesn't tell you that you have to precede the line-space command with another command before it will work.

Also, the documentation tries to serve too many different needs at the same time. The main manual, a 253-page paperback, describes an older, CP/M version of *NewWord*. A slim booklet entitled *Getting Started* describes how to set up *NewWord* for the IBM PC, but it's easy to overlook since the main manual doesn't mention it. *NewWord's* newer features are described in a second booklet, *Supplementary Notes*, which is also easy to overlook. *NewWord* IBM users would be better served by a single, IBM-specific manual.

Setting up *NewWord* for action only takes a few minutes. The manual takes you through the creation of working copies of the program, then advises you to call New-



EXPANDED FACT FILE

NewWord 3 3.00

NewStar Software Inc.
1601 Oak Park Blvd
Pleasant Hill, CA 94523
(800) 932-2526
(800) 544-3377 (in Calif.)

List Price: \$349



Requires: 80K RAM, DOS 2.0 or later, one disk drive (but two disk drives recommended)

CIRCLE 662 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:1, RM:255, AI
Line Spacing: LS:1-9, LF, OC
Character Formats: VP, PW, BO, IT, UL, SP, SB, ST, CB, ASC
Page Formats: LIT, LIT, LTB, GL, GR, LP:255, PL:1, PW:255
Tabulation Format: TL, TR, TC, DC
Header/Footer: SL, UM, OF, UP, AN, RN, PA
Multiple Columns: NC, UC

EDITING SCREEN DISPLAYS

Nontext Display: RO, CC, LN, PN, DF
Text Display: SL:24, SC:80, WA, WD, FJ

TEXT ENTRY AND EDITING

Typing Editing: FC, IT, ID, IM
Deletion Formats: CD, WE, LA, LE, SE, PE, DE

Character Features: AC, HH, SH, HB
Cursor Movement: CM, CK, SD, NC, NL, NW, NSC, BMC, BD, SU, SD, SL, SR, JC, JL, JP, JM

Block Editing Tools: HL, AB, CO, MV, CP, DE, MR, DF, HF
Search and Replace: FO, BK, CS, CI, WW, AS, WS, WR, FS, FR, VY
Undo Utility: UD

PRINTER SUPPORT

NP:34, UP, PT, CH, PW, PS, OF, AE

FILE HANDLING

Document File Strategy: FD, LM, DF, CT, OTH
Document Saving: AB, DB, MS, EN, ER, EL
DOS Facilities: DR, CDK, ADK, CDR, ADL
File Import and Export: IM, IAP, IWS, EAL, EWS

SPECIAL FEATURES

Spelling Checker: WD:45000, UG, UD, US, SW, ED, IC, BG, MR, IM, AD, QK
Other: KM, CS, MM, AI, AT, DV, TM, HS, MS, MT



NewWord 3 offers a newly designed spelling checker that provides several alternative spellings for wrong words.

Star Software for help in "unlocking" the program. This is not copy protection, but merely a way to stamp the program with your name and discourage would-be pirates. If you wish, you can run the setup programs that choose program defaults, select screen colors, and define function keys, but you don't have to. *NewWord* will run just fine the way it comes from the factory, and you can customize it after you learn how it works.

All in all, *NewWord* is a powerful program at an attractive price. Like its role model *WordStar*, *NewWord* has the horsepower to handle complicated tasks, yet stays out of your way when you want to pay attention to your writing.

—Dara Pearlman

NEWWORD 3 3.00

NewWord 3 3.00 is NewStar Software's latest version of its *WordStar*-compatible word processor. But it's more than just an upgrade: It boasts a host of added features, faster operation, and—oh yes—a higher price tag.

While continuing to market its \$249 *NewWord 2.15* as an alternative to *WordStar*, NewStar is presenting *NewWord 3* at a price of \$349 as its offering to power users who desire such features as built-in spelling correction, macros, math capability, and index and table of contents generation.

NewWord 3 retains *NewWord 2.15's*



WordStar file compatibility and *WordStar*-like command structure. This is a clear lure to *WordStar* users, who can move over to *NewWord 3* without taking the time to learn a new program or convert their files to a new format. Floppy-disk PC users will be pleased to discover that *NewStar* has managed to add all of the new features without making *NewWord 3* unwieldy or slow. The entire program, including the spelling dictionaries, still fits on a single double-sided floppy. And instead of growing slower with the weight of its new features, *NewWord 3* is actually a bit faster than older versions.

I reviewed a preproduction version of *NewWord 3* that was almost ready for market, and I came away impressed. The new product is a substantial improvement over *NewWord 2.15* and contains a lot of useful new features.

It remedies a major deficiency of the older program by letting you print to disk, so that you can use the DOS PRINT command for background printing while you write. The manual has also been improved. It's no longer cluttered with C/P/M references and is easier to understand.

THE NEW MATH My favorite of the new features is *NewWord 3*'s multilevel math capability. The simplest level is the calculator mode. Modeled after the calculator mode in BASIC, *NewWord 3* evaluates any mathematical expression you type into the special calculator box. You can move the answer into your text just by pressing a couple of keys.

Even more impressive is the program's ability to add up all the numbers in a given block of text. If you want a quick total on a column of numbers, you simply define the column as a block, press a couple of keys, and presto, the sum appears. This feature also works if you want to add a series of numbers embedded in text. *NewWord 3* is smart enough to find the numbers for you and give you the sum.

Its math talents don't end there. There are also batch math commands that work together with *NewWord 3*'s merge-print feature. Using these math commands, you can write simple programs that calculate individual results for each letter, invoice, or proposal in your mailing list. Together with the program's new number-format-

ting commands, which allow you to align columns and specify commas and decimal places, these math commands turn *NewWord 3* into a rudimentary database management system.

Another nicely designed feature is the built-in spelling checker that lets you check a word or an entire document. When it finds a word it doesn't recognize, the checker proposes alternative spellings that

■ The ability to use the spelling checker without swapping disks is a floppy-disk user's dream.

you can swap into your document with a keystroke. Its guesses are usually pretty close, even on odd typos with reversed letters. Because *NewWord 3* reads its dictionaries into memory as you use the spelling checker, the checking becomes faster as you use it more. And the ability to use it without swapping disks is a floppy-disk user's dream.

NewWord 3's indexing feature offers a novel twist. You can use it to compile a "quick and dirty" index by telling the program to index every word in your document. Then, working with this initial index, you create an exclusion list—a list of words that you don't want to have indexed for your document. On your next pass, *NewWord 3* uses the exclusion list to screen out unwanted words and create the relevant index. Using this technique, I was able to create an index for this review in less than 10 minutes. *NewWord 3* also lets you create indexes by the more conventional method of marking words and phrases in your document that you want included. The program's table of contents feature lets you compile up to nine separate tables by embedding special formatting commands in your document, then choosing the table of contents commands from the main menu.

NewWord 3's macro capability, called Shorthand, is useful although not state-of-

the-art. You can store up to 36 different text or command sequences and invoke them by typing the Esc key followed by a letter or a number. Because it can't record a command sequence while you're actually performing it and because of the limited number of definitions available, Shorthand is not as powerful or as easy to use as a standalone macro processor like *ProKey*. However, there are some nice touches. It works elegantly in tandem with *NewWord 3*'s math function, allowing you to insert the results of your calculations into the text either as a raw number or formatted in "dollar sign" mode, which allows two decimal places and has commas separating every three digits. Shorthand can also give you a quick list of your macros when you define new ones.

HANDY COMMAND MACROS There is also a host of useful new cursor control and delete commands, as well as commands to move forward or backward to the next character typed, to delete to the next character typed, and to move the cursor to its location before the last command. These commands can be combined into *NewWord 3* macros to create commands that can delete to the end of a sentence, or realign a document and return the cursor to its original position.

Although it lacks some of the high-powered features of its competitors—like footnote handling and the ability to edit several documents at a time—*NewWord 3* is still a tempting program for power users, *WordStar* fans, or anyone who uses a floppy-disk-based PC. *NewWord 3* has transcended *WordStar* compatibility to become a powerful program in its own right. —Dara Pearlman

PC-WRITE 2.55

When it comes to pure value, *PC-Write 2.55* has no competition. It may not be the fastest program, nor have the most features, but it does its work well. When you consider that you can have all this power for just \$10, it is even easier to overlook its few shortcomings.

PC-Write is a "shareware" program,

which means that you can get a copy of the disk (which includes an on-disk manual) for free from local user groups, or you can get one for \$10 from Quiksoft. If you decide you like the program, you can become a registered owner for \$75. This fee entitles you to a complete, printed manual, a quick-reference card, telephone support, a newsletter, and two free updates. Besides all that, you have the satisfaction of helping to support a company that has managed to provide a terrific product at an outstanding price.

As you scan the features chart, you will see that this program has most of the features you might want: the ability to create headers, footers, tables of contents, and footnotes; handle mail merge and split-screen editing; and more. These capabilities are accessed either through embedded dot commands, or through the many function and special key commands.

The program makes good use of the PC's features. The function keys serve double or triple duty. The display shows on-screen formatting, and color is used to advantage on a graphics monitor. There are nine help screens available; you can also exit to DOS temporarily, then return to the document you were editing.

There are some flaws in the program. For example, you can only have a single formatting ruler active in a document. If you change the default ruler, you must remember to save it or you will lose it; it is not saved automatically with your file. You also must reformat your paragraphs after making any changes that affect line length. Be careful about columns of information; if you don't protect them with embedded codes, they will be condensed into paragraph format. You cannot "insert" tabs into text that already exists, so rearranging a file by hand can become a little tedious. The program also has a separate print module, but the process of exiting the editor and running the printing program is fairly quick.

The tutorial also deserves a small rap on the knuckles. It consists in large part of simply typing in a story. While this is a nice diversion and does illustrate how word-wrap works, there is room on the distribution disk for a sample text file. I would prefer having a sample text to typing in the file myself.

A FEW NICE TOUCHES On the other hand, *PC-Write* has some nice touches. You can automatically transpose characters, undo the last block deletion or move, create macros to automate repetitive tasks, and set and reset temporary margins. If you are so inclined, you can even redefine the entire keyboard. Many users may not be aware of this, but *PC-Write* already emulates the majority of *WordStar*'s editing commands. With just a little work, you can probably remap the keyboard to work in the same way as your other favorite programs.

PC-Write produces standard ASCII text files, so it is suitable for program coding. This also makes it fairly easy to import and export your work to and from other programs.

If you are on a tight budget or if you want to try out word processing on a PC before sinking a fortune into one of the high-priced programs, this is the program for you. If you are a hacker and would like to experiment with the inner workings of a word processing program, you can get the source code when you become a registered owner (Pascal and assembly-language code). Version 2.6 of *PC-Write* is in the works and should be available soon after this article is published. Look for new features like embedded rulers and automatic reformatting.

Even if you don't fall into any of these categories, you should give this program a good look. You will get more for your money here than almost anywhere else.

—Alfred Poor



EXPANDED FACT FILE

PC-Write 2.55

Quiksoft
219 First Ave. North, #224
Seattle, WA 98109
(206) 282-0452

List Price: \$75 (registered user)



Requires: 128K RAM, DOS 1.1 or later, one disk drive.

CIRCLE 660 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JC, JN
Margins: LMS, RMS, 255, AL, AO
Line Spacing: LS:1-9, LF, KP, KN
Character Formats: VP, PS, PW, BO, IT, UL, SF, SB, ST, SC, CB, ASC, CT
Page Formats: LIT, LIT, GL, GR, LP-300, HT, HL, HR, FT, FL, FR, PL-300, PW-255, MP
Tabulation Format: TL, TC, DC
Header/Footer: SL, UM, OF, UP, AN, RN, PA

EDITING SCREEN DISPLAYS

Non-text Display: RO
Text Display: SL-24, SC-80, WA, WD, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ED, IM
Deletion Formats: CD, WA, LA, LE, LB, DA
Character Features: AC, HH, SH, HB
Cursor Movement: CM, CK, SD, MS, NC, NL, NW, NS, NP, NSC, NPG, BL, BS, BP, BSC, BPG, BD, SU, SD, SL, SR, JC, JL, JP, JM

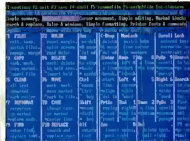
Block Editing Tools: HL, AB, DO, MV, CP, DE, FC, PP, MR, HA, DF, AW, HF, FN
Search and Replace: FO, BK, CS, CI, CP, WW, AS, WS, WR, FS, FR, VY
Undo Utility: UD, RP

PRINTER SUPPORT

NP:137, UP, PT, CH, PW, PS, OF

FILE HANDLING

Document File Strategy: FD, DF, CT, ASC, DS-60
Document Saving: AB, DB, MS, SW, EN, EA, EL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IAL, IWS, EAL
SPECIAL FEATURES
Other: KM, CK, CS, SF, MM, FP, AT, GR, FL



PC-Write's one-screen help menu offers a comprehensive, if somewhat crowded, explanation of its various commands.



PERFECT WRITER 2.0

Perfect Writer 2.0 is a word processor with two personalities. On one level, it is easy to use, relying on pop-up menus to guide you through the processing of simple documents. On another level, it uses a complex hierarchy of embedded commands to give you advanced formatting features. According to THORN EMI Computer Software Inc., this increases the processor's versatility and the user's options, but I'm not so sure. In my opinion, *Perfect Writer* suffers from a touch of schizophrenia and would be a much better processor if it resolved its identity crisis.

Perfect Writer serves as an excellent role model for a complete word processing package. It comes on three disks, which contain the *Perfect Writer* program, a command module that integrates *Perfect Writer* with *Perfect Calc*, *Filer*, *Link*, *Graph*, and *Speller*; a host of installation and configuration programs, including support for over 40 printers and a mouse; the *Perfect Speller* and *Thesaurus* programs; and lessons and practice files. The documentation is equally as complete with plenty of high-quality screen shots, examples, and tutorials.

For simple writing tasks, *Perfect Writer*'s pop-up environment is slow, but very easy. You invoke the pop-up menus by pressing the Esc key. From the main menu, you proceed through a series of menus that are activated by using the arrow keys with a Return key or typing in the first letter of the command. This facility is foolproof for the novice, but the intermediate user will tire of the long delays between menu selections and the length of the typical menu-driven command sequence.

There are some shortcuts, but, in reality, they offer little relief. The menus can be put on a delay, so you can enter memorized command sequences without waiting for the various submenus to appear. Or you can bypass the top-level menu by substituting the Ctrl key for the Esc key when issuing a command.

Some of the menus should be rearranged. The screen display's ruler appears

only when you select the Escape-Operations-Windows-2 Windows sequence from the menu. There's no way to see a ruler line without seeing split windows. To set left and right margins, you must select Escape-Operations-Setup-Left Margin and then repeat the rigmarole in its entirety to select the right margin. Finally, Escape-Operations-Setup-Save Setup stores your changed margins. Certainly, *Perfect Writer* could easily redesign these menu selections to save some time and effort.

In conjunction with the menus, each of the ten function keys has two associated functions. These are used primarily for cursor movement and deletions, but many of them, like Redraw Screen and Mark

Paragraph, are shortcuts for lengthier pop-up menu commands. A function key overlay template is supplied with the program.

The pop-ups and function keys are adequate for most simple memos and short letters, letting you operate in a fairly WYSIWYG environment. But once you want to include any degree of page formatting, you kiss the simple pop-ups good-bye and enter the dubious world of embedded design commands. Embedded commands demand a degree of accuracy and rigidity that most novice and intermediate word processing users cannot cope with.

Actually, simple embedded commands are manageable and do in fact speed up the command-entry process. For example,



EXPANDED FACT FILE

Perfect Writer 2.0

THORN EMI Computer Software Inc.
1881 Langley Ave.
Irvine, CA 92714
(714) 261-6600

List Price: \$199

Requires: 128K RAM, DOS 1.25 or later, two disk drives.
CIRCLE 670 ON READER SERVICE CARD



FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN
Margins: RM:80, AI, AO
Line Spacing: LS:1-2, LF, SB, SA, KP, WC, OC

Character Formats: VP, AP, PW, BO, IT, UL, SP, SB, CB, ASC, CT
Page Formats: LJT, LLT, LLB, GL, GR, HT, HL, HR, FT, FB, FL, FR, MP
Tabulation Format: TL
Header/Footer: SL, UM, UP, AN, RN, PA

EDITING SCREEN DISPLAYS
Nextest Display: RO, DF, DK, DR
Text Display: SL:24, SC:80, WA, WD, FJ

TEXT ENTRY AND EDITING
Typing/Editing: FC, ID, IM
Deletion Format: CD, WA, LA, LE, SA, SE, PA, PE

Character Features: AC
Cursor Movement: CM, CK, SD, NC, NL, NW, NS, NP, BL, BS, BP, BSC, BPG, BD, SU, SD, JL, CK

Block Editing Tools: HL, AB, PH, MV, CP, DE, FP, FPG, MR, HA, DF, AW, HF, FN
Search and Replace: FO, BK, CI, CP, WW, AS, VY

Undo Utility: UD

PRINTER SUPPORT

NP:40, UP, PT, QU, CH, PS

FILE HANDLING

Document File Structure: LM, DF, CI, CS, AS, DS:100

Document Saving: NB, MS, EN, ER, EL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IAL, IWS, EAL, EWS

SPECIAL FEATURES

Spelling Checker: WD:5000, UG, US, ED, IC, MR, IM, AD, MM, QL
Others: CS, MMD, PP, FS, FE, FF, AI, AT, OG, TH



Perfect Writer's pop-up menus guide the user through simple operations, while embedded commands manage the advanced formatting features.

you can underline a passage using the embedded commands by typing @UX (text to be underlined), which is considerably more efficient than entering a series of pop-up menu commands. Simple one-line embedded commands can handle features like italics, table of contents generation, chapter and section headings, indexing, and footnoting. The problem is that many embedded commands require nested arguments if they are to have any real power.

Ultimately, too much time is devoted to deciding which formatting environment to use and too little time is left for writing. Several of the embedded design commands can be selected from the pop-up menus (under an environments menu), but others must be entered manually, only adding to the confusion.

Search-and-replace facilities are easy to use, yet powerful. Provisions exist for backward and forward searching as well as the ability to search other documents and the *Thesaurus* program.

The moment you insert or delete text from your document, you must manually reformat the paragraph. At best, all you can do is reformat a paragraph at a time. When you want to change a document's margins, it is a paragraph-by-paragraph proposition.

Perfect Writer's memory management would leave Sherlock Holmes scratching his head. It uses a virtual architecture system; so, presumably, you can edit documents that are larger than the available memory (up to 100 pages of text with a swap file of 248K bytes). The manual states that the basic swap file is configured for 48K bytes. Yet, when I typed *PC Magazine's* assignment in and loaded it into memory with two other assignments (no more than 16K bytes in total), a "Swap File Full!" message flashed across the screen.

At this point, the manual suggests you go to the main menu and delete some unused files from memory, but I never got that lucky. My swap-file encounters culminated in sudden death, and I had to reboot the system. *Perfect Writer* should, at minimum, issue a warning before hitting you with its "Swap File Full" error message.

To accommodate the creation of a large swap file, I ultimately had to purge the

program's spelling checker from my program disk. It's unbelievable that a program that purports to handle documents larger than available memory cannot handle a file that is nowhere near as big as my available disk memory.

AN IMPERFECT TEN The system is not very robust. I crashed the system when I accidentally set my margins at 10 for the left and 10 for the right. And I crashed the system when I tried to remove spurious commands from a document I had created using another word processor. Certainly, these needn't be fatal mistakes.

Perfect Writer has the option to search or go to a specific line number in the text. It also uses line numbers to cite your format errors during its print preview. Yet the program has no facility to tell you which line number you are at.

Provided you handle your swap files properly, *Perfect Writer* will allow you to load multiple documents into memory using the simple pop-up menu commands. You can switch between as many as seven active documents at a time. The two-window display lets you compare two documents, and a gather facility allows you to mark blocks of text in one document, gather them up, and insert them in another.

Perfect Speller, *Perfect Writer's* spelling checker, is a real boon. It works quickly and correctly. Since *Speller* is on the *Perfect Writer* program disk, it is easily accessible to floppy disk users. However, it flagged my embedded commands as spelling errors, a ridiculous situation at best. *Thesaurus* (even though it requires a disk swap) is often worth the effort. A typical search for a synonym took me about 10 seconds.

The program has some flexible options for creating form letters. An @Case command lets you select portions of a document to print, so you can create form letters with several different variations. This command can be used with various arguments to indicate which sections of a document to include in which mailings. You can also use the @Message command to interactively prompt you to enter text from your console.

In order to modify the default format settings, you must run a separate PFCONFIG program and update a file called

PF.DAT. It would be more convenient to access these values (they include top and bottom page margins, left and right margins, and line spacing between paragraphs) without exiting the program. You can override the default selections with embedded commands, but I would frequently forget what my defaults were set for and have to exit the *Writer* program to obtain a listing.

Perfect Writer has potential, but it is very far from approaching perfect. My task during *PC Magazine's* testing was to format a simple business letter. Yet, when I look at the first ten lines of the commands *Perfect Writer* required to compose this letter and I think about how many print preview screens I had to endure before my simple letter was error free, I feel that the contortions necessary to get this program to format a document were hardly worth the effort.

To preview a finished document, you must exit *Perfect Writer*, return to the command module, and wait patiently while it formats your pages. Next you see a rather cryptic list of your error messages. When I called THORN EMI for assistance, even they had trouble making the cognitive leap from the specific examples in the documentation to my true-life predicament.

Perfect Writer mixes the ingredients from two word processing environments, but the recipe fails. If you stick to a simple fare, the processor is adequate. But those with advanced formatting requirements will suffer from indigestion.

—Robin Raskin

PERSONAL WORD PERFECT 4.0

Satellite Software International's *Word Perfect* is becoming one of the professional word processor heavyweights. Compared solely with *Word Perfect*, *Personal Word Perfect 4.0* might be considered the personal category edition. Compared with other word processors, however, *PWP's* sophistication pushes it into the professional category.

Like its big sibling, *PWP's* command



strategy is to use function, Ctrl, Shift, Alt, and numeric keypad keys to the hilt. Some key combinations evoke a single function, while others bring up submenus. Some functions, such as tab alignment and printing, are divided into aspects and spread over two key combinations. To add a little merriment, the Alt, Shift, and Ctrl keys are color coded, but the colors on the function key template supplied with the package are not in the same vertical order as the three keys.

The less frequent PWP user will have to remember to press the "Screen Rewrite" key in order to make format changes, such as new line spacing or margins, appear on the screen. All format specifications, whether they are shown on-screen or not, are hidden in the text as embedded codes. The "Reveal Codes" key will take you out of editing mode and display a section of the document with its bevy of bracketed format codes. Since you can't see the codes when you are in editing mode, it is often easiest to delete unwanted format codes from the "reveal codes" mode. Wending one's way through the codes would be easier if the cursor controls were operative in the reveal codes mode, and if the codes and text were in contrasting colors.

PWP's search-and-replace functions and block functions are good demonstrations of why PWP is a professional rather than a personal word processor. Both of these procedures combine function key use and prompts according to a prescription that you must already know.

For example, defining a block is an easy matter that causes the blocked text to appear in reverse video. But to erase the block, you must know that you need to press the Backspace key, causing the appearance of the prompt, "Delete Block (Y/N)," to which you must respond.

When you are moving or copying a block of text, there is a similar point where you are left on your own to figure out how to complete the procedure. The global search-and-replace feature works fine once you know how to use it, but it is rather odd to press the "Replace" key first, type in the replacement phrase, then press the "Search" key. A guiding series of prompts would make the correct keystroke order more intelligible. PWP makes it as easy to search and replace for codes, such



EXPANDED FACT FILE

Personal Word Perfect 4.0

Satellite Software International
288 W. Center St.
Orem, UT 84057
(801) 227-9020

List Price: \$195

WellPerfect

Requires: 128K RAM, two disk drives.
CIRCLE 672 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JM
Margins: LM:0, RM:250
Line Spacing: LS:1-8, LF, KP, KN, WC, OC
Character Formats: VP, PS, PW, BO, UL, SP, SB, CB, ASC, CT
Page Formats: LIT, LIT, GL, GR, LP:108, HT, HL, HR, FT, FL, FR, PL:18, PW:25, MP
Tabulation Format: TL, TR, TD, TC, DC
Header/Footer: SL, UM, OF, UP, AN, RN, PA, PR, THF
Multiple Column: TC, NC, CP:5, UC, GW

EDITING SCREEN DISPLAYS

Nonexit Display: RO, CC, LN, FN
Text Display: SL:24, SC:80, WA

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, IM
Deletion Formats: CD, LE, PGE
Character Features: HH, SH, HB
Cursor Movements: CK, NC, NL, NW, NSC, NPG, BL, BSC, BPG, BD, SU, SD, SL, SR, JC, JL, JP
Block Editing Tools: HL, AB, SE, PH, CO, PG, MV, CP, DE, MR, DF, HF, FN
Search and Replace: FO, BK, CS, WW, AS, WS, WR, FS, FR, VY
Undo Utility: NA

PRINTER SUPPORT

NP:200, UP, PT, ES, EO, QU, PW, PS

FILE HANDLING

Document File Strategy: LM, ASC, DS:36000
BYTES

Document Saving: AB, DB, MS, AT, AD, EN, ER, DL, EL, PL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Spelling Checker: WD:85000, UG, UD, US, SW, DB, ED, IC, BG, MR, IM, AD, QK
Other: CS, MM, PP, PE, FF, FL, SC, HA, HS



You can use Personal Word Perfect's reveal codes mode to display the text-formatting specifications and delete unwanted ones.

as hard returns and tabs, as it is for text.

Like the block and search facilities, page formatting requires you to have some foreknowledge of the program's keystroke order. There are separate subfunctions for selecting the page-number column position and the page-number position; yet according to the manual, the former must be selected before the latter. If PWP requires this, the menus should be arranged in logical sequence rather than burdening the user with the programmer's work. PWP counteracts this weakness somewhat by including another helpful page-formatting feature—the binding width—which enables you to push text to the outer edges of the pages, leaving room in the center for holes or bindings.

In PWP, there is often more than one way to do something. The print function is accessible either directly or as a subfunction on another menu, and there are two different ways to specify page numbers. You turn off a function by deleting the code, pressing the "Cancel" key, or toggling the function key—depending on the function. New users may see this as inconsistency, while experienced ones will view it as flexibility.

PWP's file handling has its pros and cons. On the pro side, the timed back-up facility allows you to use the set-up menu to determine the frequency of file backup. When you return to PWP after a power failure or other mishap, a message appears at the bottom of the screen every couple of

minutes to remind you that your back-up file exists. Merging of files and portions of files works well, as does conversion to and from ASCII. The problems occur when you try to type in the name of the file you want to save. Any cursor movement on the filename is taken to mean Enter, so that you'll find yourself saving files under names you didn't intend. Changing even the first letter of the filename causes the rest of the name to disappear, so that you have to retype the entire name even if the only difference is the drive designation.

PWP doesn't have as many special features as *Word Perfect*, but the existing ones work well. The spelling checker will even help you find words phonetically or based on a pattern. The mail-merge function is easy to use, although you'll have to remember to indicate that page numbering should restart with each new document. You can redefine the Alt and Ctrl keys as special characters, choosing from the set available with the program.

PWP introduces the basics in its learning manual. Each page displays the screen as it should appear when you have correctly completed the exercises. In its current form, this tutorial teaches disparate facts but doesn't give enough of an overall sense of how the program works.

The reference manual is one of PWP's worst features. In fact, to list all the problems would make a manual in itself. The description of the merge function, for instance, says to press the "Merge" key, without specifying which one of the function keys is designated as handling merges; it gives a skimpy explanation of the feature and refers you to the tutorial for details. The table of contents has eschewed page numbers. The reference manual lists all features in alphabetical order, regardless of similarities and menu groupings, making material on related functions harder to find. The summary of codes listed in the manual is not for PWP but for Version 4.0 of *Word Perfect*. The reference pages for cursor control and text deletion don't indicate the key combinations, even though most of these combinations are not on the function key template. The description of headers and footers does not indicate that these are limited to one line of text and that the header/footer error message can be found in the error message section, but is

not even mentioned in the header/footer description. Finally, the printer manual is on the disk only; its existence is mentioned in the installation booklet but not in the reference manual.

Obviously, upgrading the *Personal Word Perfect* manual would go a long way toward improving the entire program, as would smoothing the procedural bumps. These enhancements would make PWP a solid professional word processor, requiring a user's commitment to learning its methods and giving efficient word processing in return. And although even with these changes, PWP may still suffer in comparison with the newly upgraded *Word Perfect*, PWP is half the price of *Word Perfect*. Once Satellite Software has revised *Personal Word Perfect* in the same way that it has improved its sibling, PWP will be a very good buy for the money.

—Stephanie Stallings

PRACTIWORD 1.05

PractiWord 1.05 is a *WordStar* twin—it doesn't pretend to be otherwise. But it definitely outdoes *WordStar* in one area, price; *PractiWord* sells for only \$99!

PractiWord combines several command strategies. Its Ctrl key and letter combinations will look familiar to any *WordStar* user, though many of *PractiWord*'s key combinations are different from *WordStar*'s. Whereas *WordStar* left function key definitions up to the user, *PractiWord* uses the function keys to overlap and extend the Ctrl-letter combinations and to make the program easier for new users. You can access some menus and features with either the Ctrl key or function key method. Other function keys bring up additional menus, such as ones for specifying



EXPANDED FACT FILE

PractiWord 1.05
PractiCorp International
The Silk Mill
44 Oak St
Newton Upper Falls, MA 02164
(617) 965-9670

List Price: \$99



Requires: 128K RAM, DOS 2.0 or later, one disk drive.
CIRCLE 666 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT
Paragraph Formats: JL, JR
Margins: RM, LPM, AL
Line Spacing: LS-1-9, LF, WC
Character Formats: BO, UL, SP, SB, CB, ASC
Page Formats: LIT, LLB, GL, GR, LP-100, HT, FB, PL-100, PW-199, MP
Tabulation Format: TL, TR, TD, TC
Header/Footer: SL, AN, PA

EDITING SCREEN DISPLAYS
Nontext Display: RO, CC, LN, PN, DF, DK, DR, DA
Text Display: SL-22, SC-199, WA, WD, FI, ST

TEXT ENTRY AND EDITING
Typing: T-11, T-12, ID, IM
Deletion Formats: CD, WE, LA
Character Features: HB
Cursor Movement: SD, NC, NL, NW, NP, NSC, BL, BSC, BD, SU, SD, SL, SR, JM
Block Editing Tools: HB, AB, MB, CP, DE, MR, DF
Search and Replace: FO, BK, CS, WW, AS, VY
Undo Utility: NA

PRINTER SUPPORT
NP-24, PS

FILE HANDLING
Document File Strategy: LM, DF, CI, CS, CT, AC
Document Saving: AB, MS, AT, AD, SW, EN, ER

EL
DOS Facilities: DR, CDK, ADK, CDR, ADR
File Import and Export: IM, IAP, FWS, KOTH, EAL, EWS, EOTH

SPECIAL FEATURES
Other: KM, CS, SF, MM, MMD, AI, AT, TM



PractiWord allows you to access menus and features (such as highlighting) through either Ctrl or function keys.



ing text type, tabs and margins, and creating abbreviations.

As in *WordStar*, you make a menu selection by pressing a single letter. *PractiWord* also uses the familiar dot commands to give print-time formatting directions. In addition to these command types, *PractiWord* has utility menus that you can access from the main menu, which use the "point to command, press Enter" method. If you are used to *WordStar*, you will have to learn in *PractiWord* to release the Ctrl key before pressing the second alphabetic key; according to the program's designer, this is a constraint of combining Ctrl key commands and flexible menus.

PractiWord's editing environment has some constraints. The ruler line, or "tab-rack," has exclamation points to demarcate tabs, but no numbers. Instead, the page, line, and character counts are kept at the bottom of the screen. One little quirk here is that these counters do not take into consideration your dot commands, so that even though you've included a dot command for double spacing, the counters will still be calculating pages on the basis of single spacing.

Also, when you set new left and right margins, they are immediately reflected in the tab-rack. But the text still has its old margins, and you'll have to reformat each paragraph—individually—to give the document the new margins.

WORDS OF WARNING You'll also have to make sure when you are importing data that the left margin specified on the tab-rack is further to the left than the left margin of the imported document. If it's not, you'll find that when you reformat your text, everything will all run together into one big paragraph. You'll also have to be careful to import documents with the justify option on. If you bring in text with justify off, and then attempt to reformat it, there will be gaps in the text because the program did not distinguish between hard and soft spaces. To safely align tables of data, make sure that the word-wrap mode is off, or you'll find that all your numbers have run together.

PractiWord's find-and-replace feature will search for a 30-character string and place it in a 10-character-wide window that scrolls horizontally. This feature will

not find and replace such control codes as hard returns or blank lines (although this isn't as necessary as it might be, since *PractiWord* doesn't distinguish between hard and soft returns). The addition of a wildcard capability would be helpful.

While *PractiWord* does not offer pitch changes, it does allow you to use combinations of boldface, underlining, double-strike, and super- and subscripts. The screen shows these enhancements in bright colors with one color for the letters and often a second color for reverse-video blocks, making the enhancements easy to see and more fun to use.

Software can have its equivalent of the proverbial uncapped toothpaste tube. In

■ It's nice that *PractiWord* has a mail-merge feature, but this one would be better if it were more automatic.

PractiWord, it's the business of specifying the name of a file to be edited on the main menu. If you misspell the filename, the program informs you that the file cannot be found and directs you to press any key to continue. When you take it up on this unanimous offer, the program opens a new file with the misspelled name. There is no way around this procedure; maybe it improves one's spelling.

The utility menu has been designed with the commands at the top, followed by the place for entering the source and destination filenames and paths. Since you have to name the files before you choose a command, it would make sense to switch these two sections.

As for special features, *PractiWord* has a programming edit mode, lets you run DOS commands from a special menu, and has an abbreviation feature that replaces your abbreviation with the full phrase immediately. You can also use this last feature to incorporate often-used keystrokes into a macro or to automatically correct

frequently misspelled words. The manual needs to demonstrate macros more thoroughly with an extended example. *PractiWord* incorporates procedures for creating indexes and tables of contents using dot commands.

It's nice that *PractiWord* has a mail-merge feature, but this one would be better if it were more automatic. You must omit page numbers from the primary document, and you have to force page breaks at the end of iteration of the document. You must also remember to use the print-time text reformatter, a dot command, to ensure that the merged data will fit correctly.

PractiWord's documentation is moderately helpful. The index needs to be much more thorough and specific. For example, the names of basic commands, such as Move, Done, and Replace, are not in the index; information on the header can be found under Page Header, and you'll have to look under BAK to read about backups. The manual also needs bolder headings for sections and more paragraphs so that it is easier to find information at a glance. Some sections, such as those on tabs, are confusing and need to be rewritten. The tutorial assumes that you've already read the manual, though going through a tutorial first is usually an easier introduction to new software.

WORD PROCESSING IN SLOW MOTION The most outstanding difficulty with *PractiWord* is its plodding pace; the fact that the program is recommended for use on floppy disk systems is no excuse. Every procedure seems to require the grinding of the program disk, then the data disk, then the program disk again. Bringing a two-page document to the screen to edit took 8 seconds!

A representative of PractiCorp said that it will improve the speed dramatically for the next version, which should be available soon. It also plans to add a spelling checker, distinguish between hard and soft spaces, and possibly add a full document-formatting feature. The company does not plan to emulate *WordStar 2000*, Micro-Pro's newest word processor.

PractiWord is in constant evolution as the company adds additional features and fixes old bugs. But since *PractiWord* is essentially a *WordStar* look-alike, how

worthwhile is it to expend so much effort in creating a package that might simply be a twin of an already well-established product? Even at the competitive price of \$99, how successful can such a venture be? It would be better to see this kind of creative energy expended not on an emulation, not even on improvements to an existing package, but on a real leap forward in the quality of word processing software.


—Stephanie Stallings

THE PROFESSIONAL WRITER'S PACKAGE 2.0

In many ways, *The Professional Writer's Package 2.0* is the pure expression of a professional word processor: power uncompromised by the ease of learning. The program is an amalgam of *Edix* (text editor), *Wordix* (text formatter and table-of-contents generator), *Spellix* (spelling checker), and *Indexix* (index generator) united under *The Professional Writer's Package* shell. Unlike prior versions, *The Professional Writer's Package* can address a full 640K bytes of RAM.

Because it was designed to provide the quickest route to accomplish a task, the program surrenders nothing to the demands of self-explanatory menus and WYSIWYG formatting. But you should not construe the absence of menus and on-screen formatting to mean this word processor is hard to use: with sufficient skill, *The Professional Writer's Package* makes it easy to perform many operations. Instead, it means that *The Professional Writer's Package* is demanding to learn.

Those of you with a programming background will recognize the roots of a line editor in many of *The Professional Writer's Package's* functions. It has the ability to jump to any line of text by number; its search-and-replace commands can only locate text contained entirely on a single line; it stores its files in ASCII format; and while it has a word-wrap facility, this feature is limited to newly entered text (inserted text that pushes past the right margin



EXPANDED FACT FILE


The Professional Writer's Package 2.0

Emerging Technology Consultants Inc.
4760 Walnut St.
Boulder, CO 80301
(303) 447-4495
(800) 782-4495

Requires: 256K RAM, DOS 2.0 or later,
one disk drive (hard disk supported but not required).

CIRCLE 673 ON READER SERVICE CARD

List Price: \$490



FORMATTING FEATURES FOR FINAL TEXT

Paragraph Format: JL, JC, JN, JM
Margins: LM:0, RM:250
Line Spacing: LS:1-3, KN
Character Format: VP, PS, PW, BO, IT, UL, SP, SB, ST, SC, CB, IBM, CT
Page Format: L:IT, GL, HT, HL, HR, FB, FL, FR, MP
Tabulation Format: TL, TR, TC, DC
Header/Footer: SL, UM, OF, UP, AN, RN, PA, THF
Multiple Column: TC, NC, GW

EDITING SCREEN DISPLAYS

Nontext Display: CC, LN, DF
Text Display: SL:22, SC:80, WA, WD

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, IM
Deletion Format: CD, WA, WE, LA, LE
Character Features: AC, SH, HB
Cursor Movement: CK, SD, NC, NL, NW, NSC, BL, BSC, BD, SU, SD, SL, SR, JC, JL, JM
Block Editing Tools: HL, AS, MV, CP, DE, MR, HA, AW, HF, FN
Search and Replace: FO, CS, CI, WW, AS, WS, FS, FR, VY
Undo Utility: UD

PRINTER SUPPORT

NP:60, UP, SP:3, QU, CH, PW, PS, OF, AE

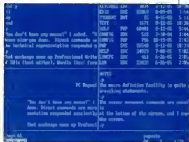
FILE HANDLING

Document File Structure: FD, DF, CT, ASC, DS:520000 BYTES

Document Saving: NB, MS, SW, EN, ER, DL, EL, IN
DOS Facilities: DR, MU, CDK, AOK, CDR, ADR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Spelling Checker: WD:660000, UG, UD, US, ED, IC, BG, MR, BM, AD, QK
Other: KM, CK, CS, SF, MM, FP, FS, FB, FF, AI, AT, FL, SC, DV, TM, HA



The Professional Writer's Package allows you to edit from four windows. Note that one of the windows contains the disk directory.

will not cause word wrap).

However, look again. *The Professional Writer's Package* contains many other features foreign not only to line editors but to many word processors as well. It can move columns (for example, grab just one of several columns and move or copy it elsewhere), count words, footnote, and generate tables of contents and indexes. The program has a 50-line undo buffer and allows multiline headers and footers, use of up to four on-screen windows (each a separate buffer that can contain a separate file or another version of the same file), decimal tabs, and automatic hyphenation.

The word processing market has taken an unequivocal stand in favor of on-screen formatting (with the trend moving even

further in that direction with the advent of IBM's EGA board). This makes *The Professional Writer's Package*, a high-end word processor that doesn't format on the screen, a bit of an anomaly today.

WHAT'S THE DIFFERENCE Beyond the preference of many people to see on the screen what they will see on the printed page, what differences in function are imposed by the lack of on-screen formatting? Let's start with differences in usage. If you need to insert text while using *The Professional Writer's Package*, you must hit the Return Key to break the line where you want to begin inserting and then type in the new text. You don't need to rejustify those lines on the screen—that is the job of *The*



Professional Writer's Package printing program, *Wordix*. Although the resulting ragged on-screen appearance of the text is difficult to get used to, the printed copy will be fully justified (although that can be changed) and neat as a pin. If your present word processor requires you to reformat paragraphs manually or does so automatically but slowly, you'll probably feel unshackled by this approach because there's no need to do either. On the other hand, if your word processor is adept at these tasks, you'll likely feel you've lost something in the transition to *The Professional Writer's Package*.

I discovered only two functional deficiencies with the unformatted approach, one of which appeared when *PC Magazine's* sample problem required me to set tab stops to match some decimal tabs. In that case, I had to print the document, do some character counting, return to the editor to implement my changes, and then print once again to verify them (*Edix* can preview printed documents on the screen, but you must still format that document with *Wordix* beforehand). On-screen formatting would have saved me time and uncertainty in this operation. For this reason, you might find yourself unable to part with on-screen formatting if you frequently edit to improve the appearance of your printed page, for instance by balancing the size and the position of paragraphs.

The other deficiency emerged when it came time to edit my work. I frequently write, print my work, edit with a pencil, and then return to the screen to enter the changes. Because formatted printed and unformatted on-screen versions of text can appear very different, I found it more difficult to locate text on the screen when working from a printed document than when working with a WYSIWYG-oriented program.

It is possible to reformat a paragraph (or the entire document) on the screen, but the operation is slow enough to discourage you from using it regularly. In fact, *The Professional Writer's Package* is slow with screen operations in general. Moving the cursor one line beneath the bottom of the screen initiates an action not so akin to scrolling as to rippling: the screen visibly refreshes itself line by line from top to bottom, and while you can edit lines up to 250

characters in length, the rightward scrolling of the screen beyond the 80th character is unacceptably slow.

Editing operations such as marking blocks, deleting text, and copying and moving text are handled through use of the Ctrl or Alt keys in concert with a single mnemonic alphanumeric (for example, Alt-D deletes the current line). A group of "extended commands" (entered at the command line) control file-related opera-

■ The Professional Writer's Package is slow with screen operations in general.

tions (saving and renaming files), global edit defaults (the number of characters before word wrap occurs), and several other miscellaneous operations (such as word counting and translating a block of text into lower- or uppercase). While *The Professional Writer's Package* has six pages of summary screens to help you remember such commands (augmented by a limited number of context-sensitive screens), you can only access them serially; therefore, the best solution is to create a cheat sheet until you've memorized them (I used the PC's PrtSc key to print each of the six screens).

While editing is largely accomplished through use of the single key commands described above, formatting begins with the entry of brief textual commands in the document. For example, you type ".ce" to center the following line of text and ".bw" to set the width of printed text. *The Professional Writer's Package* doesn't act upon these codes until you send the document to *Wordix* for printing.

REAPING THE REWARDS Offsetting the deficiencies noted earlier, this two-stage approach to word processing yields an unexpected benefit. ASCII files imported into a WYSIWYG word processor often present a problem: If they contain carriage returns at the end of each line (as they

often do), those carriage returns must be removed before the word processor can reformat the file. Lacking a search-and-replace facility that can remove carriage returns (and not many can), you must manually do this work. However, *The Professional Writer's Package* can reformat the text without removing carriage returns, and *Wordix* will ignore them even if you don't reformat. *The Professional Writer's Package* respects blank lines or a specific command, not carriage returns, to establish the end of each paragraph.

The requirement that editing commands must be entered where they are to take effect in the text means that *The Professional Writer's Package* lacks global paragraph-formatting commands, but its macro facility lessens the loss. If you are using several commands to format each paragraph (perhaps, to specify a preceding blank line and an indentation), you can replace them with a single character macro. Thereafter, if you redefine the meaning of that macro to include new or revised specifications, those commands will automatically take effect wherever the macro occurs within the text—providing a quasiglobal reformatting capability. Another form of macro, a text abbreviation, functions in much the same way. Once you assign a string value to a variable (such as ".asg p Professional Word Processor"), you can use that variable in place of the string in the text. At print time, *Wordix* will make the appropriate substitutions.

Wordix's macro-definition facility goes far beyond these examples. It includes conditional processing commands and the ability to implement control structures such as loops and counters. It is, in short, a programming language. Unfortunately, the documentation offers little support for advanced use of these powerful features. Frequently used macro definitions can be stored in library files, and all the macros the library files contains can be referenced by any document. A number of more-sophisticated macro applications are included with *The Professional Writer's Package*, including those to format letters and mailing labels for copiers and generate a table of contents.

The Professional Writer's Package yielded other surprises; not all were pleasant. The program lacks widow/orphan

control and by default ignores extraneous spaces between words, leaving only one space after each punctuation mark despite the need for two spaces after periods and semicolons. It is possible to issue a command to preserve blank spaces as they appear in the text, but if you do, you'll find that *The Professional Writer's Package's* unformatted on-screen appearance makes stray spaces difficult to detect (no command exists to make blanks visible à la Wang word processing). Finally, the printed copy contained occasional instances of uneven line spacing toward the bottom of each page.

Emerging Technology Consultants Inc. has assembled an impressive array of features in *The Professional Writer's Package*, but not without trade-offs—not only between performance and ease of learning but between performance in one area (final printed output) and performance in another (screen control and responsiveness). Although *The Professional Writer's Package* can handle simple tasks, its raison d'être clearly lies with the complex ones, such as serpentine, index, and table-of-contents generation and word counting. If such work is high on your list, you're not afraid of such things as macros and variables, and on-screen formatting holds no special place in your heart, well, *The Professional Writer's Package* just might suit your needs.—Dick Ridington

THE SMART WORD PROCESSOR 2.00

The Smart Word Processor 2.00, a module in the Smart Series from Innovative Software Inc., is a full-featured word processor that includes mail-merge, spelling correction, and footnoting. Like other programs in the Smart Series, the word processor is operated by the Smart Series control program, which means it also comes with communications programs (including ANSI terminal emulation, Xmodem protocol, and auto-log-on), a built-in calculator that does simple math, algebraic formulas, and Reverse Polish Notation, a time-management module for scheduling appointments and prioritizing

tasks, and a line editor for writing programs.

Waiting for the other shoe to drop? Like the one saying it costs \$495? or \$395? or \$295? Check off "None of the above." Smart delivers these features, and a lot more, for a mere \$195.

The Smart Word Processor can be purchased either as a part of the Smart integrated series of software, which consists of a spreadsheet and graphics, database, word processor, time manager, and communications programs, or as a standalone program (the time manager, communications, and calculator programs still accompany it).

The Smart Word Processor provides two operating modes: text entry and command selection. If you use any of the five

basic menus to execute commands, the program suspends text-entry mode. "Quick" keys bridge the two modes by allowing you to access frequently used menu selections without interrupting text entry. (Quick key operation consists of pressing a single alphanumeric key in association with the Ctrl or Alt keys.)

Smart devotes a large amount of the screen to keeping you informed. The program contains the text area in a window bounded by a double line. The lower part of the double line is a format ruler, and the two lines below that provide a "control area" where menus or Quick key prompts are displayed, followed by a status line that displays the document name, type of document, current page, line and column position, and current character font type. The



EXPANDED FACT FILE

The Smart Word Processor 2.00
Innovative Software
9875 Walner Rd
Lenexa, KS 66215
(913) 492-3000
(800) GET SMART

List Price: \$195, spelling checker and communications included



Requires: 256K RAM (384K RAM with spelling checker), DOS 2.0 or later, two disk drives
CIRCLE 650 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN, JM
Margins: LM0, RM132, AL, AO
Line Spacing: LSL1-8
Character Formats: VP, PW, BO, IT, UL, SP, SB, ST, CB, IBM
Page Formats: LIT, LLB, GL, GR, LP120, PL120, PW132
Tabulation Format: TL, TC
Header/Footer: SL, OF, AN, PA

EDITING/SCREEN DISPLAYS

Next/Prev Display: RO, CC, LN, PN, DF
Text Display: SL21, SC79, WA, FJ
Deletion Formats: CD, WA, LA, SA, PA, DA

TEXT ENTRY AND EDITING

Typing/IT: FC, IT, ED, CA
Deletion Formats: CD, WA, LA, SA, PA, DE
Character Features: HH, HB
Cursor Movement: CK, NC, NL, NW, NSC, BL, BD, SU, SD, JM, CK
Block Editing Tools: HL, AB, LN, CE, MV, CP, DE, FP, AR, HA, DF, AW
Search and Replace: FO, BK, CS, CI, WW, AS, WS, VY
Undo/Utility: UD

PRINTER SUPPORT

NP 30, UP, PT, ES, EO, QU, CH, PW, PS, OF

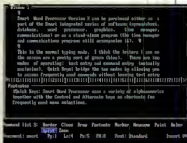
FILE HANDLING

Document File Strategy: FD, LM, DF, OTH, DS:360000 BYTES

Document Saving: NB, MS, EN, ER, EL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Spelling Checker: WD:80000, UG, UD, US, SW, DB, ED, IC, BG, MR, IM, AD, QK
Other: KM, CS, MM, MMD, FP, FE, GR, TM, MS, TC



The Smart Word Processor's windowing capability is accessible from a command menu while the user is in text-entry mode.

last line is the "autohelp" line, which contains a prompt illuminating the current highlighted menu item. It's active only while you are using the menu.

When appropriate, pop-up menus appear that supply variable information (for example, when you select the Load command, a pop-up window will display the names of available files). If this sounds a little excessive, you can turn off the window border, the ruler line, the autohelp line, and reduce the menus to mere prompts.

Options abound in *The Smart Word Processor*. You can reconfigure the program to suit your own style and abilities in many ways. For example, you can specify block operations that affect a block you have arbitrarily designated, a single character, word, line, sentence, or paragraph, or even the entire document. You can choose from a palette of eight colors in two intensities (for both foreground and background) and from ten type fonts including Greek and Gothic. You can even remap nearly all the keys on the keyboard.

Three "confidence levels" that reflect the degree of expertise you have in using the program help manage this wealth of options. At the lowest setting, the program displays a small subset of commands to avoid overwhelming a novice with choices he isn't ready to use.

EASY TO MAKE CHANGES Changes are always easy to make because there's no need to exit the program to implement them, and *Smart* includes ample shortcuts. To move from one of the five basic menus to another, just press the slash key; to move from one control screen prompt to another, press the F2 function key. To repeat the prior command, press the F9 function key; to edit that command for "almost but not quite the same" repetitions, press Alt-X. A learn mode makes recording an entire series of commands simple, and, when you're ready for it, programming language awaits your more-sophisticated needs.

One liability that accompanies all these choices is the requirement that the program access overlay files, meaning that it can be a little slow when leaving menus. Even working on a PC-XT, I noticed a pause that I would rather do without; a floppy

disk system might make that pause a constant source of irritation.

Another complaint with an otherwise sterling program is the insufficient information supplied through *Smart*'s on-line help facility, accessible through the F1 function key. It explains most operations in general terms, if at all, making it necessary to refer to the manual. Also, it lacks support for changing subdirectories from within a document. To access files from another subdirectory, you must specify their full pathname.

BELLS AND WHISTLES The program is influenced by the environment from which it springs. When the *Smart Series* is purchased as an integrated productivity package, it competes head to head with heavyweights such as *Symphony* and *Framework*. This means that *Smart* has had to pay attention to such things as merging the graphics created with the separate *Smart* spreadsheet module into text, which it accomplishes with aplomb—better, in fact, than either of the aforementioned integrated packages. *Smart* also offers a sophisticated macro programming facility and an on-line calculator.

In the best tradition of a WYSIWYG word processor, *Smart* gives you the option of going into graphics mode (where you sacrifice color) to display any special fonts you have selected. Here you have access to two sets of graphics characters, a set of box-drawing tools for forms definition (*Smart* contains a set of drivers capable of printing these), and the ability to custom-design your own fonts.

A unique command allows you to compute simple formulas interspersed with text. For example, you might write "For the proposed Sunny Acres development, we estimate \$4.55 per square foot * 45 units * 900 square feet per unit" and use the Compute command to enter the total cost later in the text (provided that this formula is contained entirely on a single line).

The Smart Word Processor, conceived as part of an integrated program, meets the challenge that few other integrated products have met: Considered as a standalone product (which is how I tested it), it not only measures up as a professional-category word processor, it excels.

—Dick Ridington

SPELLBINDER 5.40

Spellbinder 5.40 is in many respects one of the most flexible word processors around. Its heritage goes back to the very beginnings of microcomputing (it was originally designed for the Exidy Sorcerer, one of the very first home computers—hence its name). Since subsequent updates have faithfully retained full command compatibility among versions, *Spellbinder* is of particular interest if you wish to run the same program on a number of different types of computers. Its operating method gives it some advantages for certain specialized word processing tasks like editing database records, and its extensive provisions for customizing it ensure that you will be able to utilize the capabilities of a good letter quality printer fully.

I found the program positively brutal to learn, however, and its current version poorly implemented on the IBM PC.

THE FIRST HINT OF TROUBLE The first assignment, printing the various test files using the program's defaults, gave a hint of things to come. Before you can print a file with *Spellbinder*, you must first Get it (or Read it—there's a difference). To get the file, you must first go into command mode, though the cursor continues to sit in its edit mode position. You can't Get <filename> but must first Get and then respond to the prompt for Read <filename>. Having "got" the file, I was then asked for a Write filename. (After reading several chapters in the manual, you learn how to avoid constantly retyping the same filename.) After scrolling through the text, I hit P to print, and all that printed was the last part of the last page. *Spellbinder* requires you first to send the cursor to the top of the text because it prints from the location of the cursor onward.

Further, P doesn't print your document, only the first page! You must use PA (print all) or Pn (print n lines of your file). To exit at this point, you use GD (get done). This way is the simple one; as you go on, you learn how to R (read) files, which involves learning about Rn, RO (read open), RD (read/done), and the corresponding W (write) commands.

You have wonderful control once

you're adept at running the program. You can edit a set of database records, for example, with syntax such as 10r6/b/dl/r3, thus reading in the first six lines of ten records, deleting the seventh (to omit a phone number, for example), and reading in the remaining three lines.

You can move the cursor or delete by character (arrow keys), by word (default F10), by sentence, by paragraph, or with a marker.

But when you simply want to move a block of text (you "hold" it, then "unhold" it at its new location), you find yourself continually having to answer whether you want to add to or replace the text already in your hold buffer. No doubt you may want this facility at times, but for those few occasions I think it's easier to make two separate but more easily made block moves.

Apart from my difficulties in learning *Spellbinder's* baffling syntax, I found the program ponderous. For example, a simple search and replace operation that took 3 seconds with *PeachText* and 1/2 second with *XyWrite* took *Spellbinder* just over 14.5 seconds. Simply scrolling up or down one screen took approximately 2 seconds. Since the basic appeal of the program is to the power user, I found this snail's pace unacceptable.

Indeed, screen management was as idiosyncratic as the rest of the program. *Spellbinder* defaults to overwrite mode, and the only way to insert a forgotten space between words is to drop all the remaining text to the bottom of the screen. When you load the program, the cursor is on the center line of the screen, allowing you to see only 12 lines of text. If you move the cursor to the bottom line, the screen scrolls up half a screen. The reason is supposedly ergonomic (your eyes don't have to move so much), as if you read books by moving them up and down.

On the other hand, if you hit PgDn, you get a full 25-line scroll but lose the last line of your previous screen as well. And if this were not enough, while the PC's End key gets you to the end of your text, the Home key simply shuttles you back and forth on the same line, and the Backspace key simply duplicates the left cursor arrow and deletes nothing (although Shift-Backspace deletes the character at the cursor's left).

DOS YES, WINDOWS NO You can run DOS programs without leaving *Spellbinder*, and you are able to change directories in order to retrieve or store a file from within it as well. The program allows two files to be open simultaneously, but it does not provide you with the two-window capability that a top-notch program ought to incorporate.

The program's formatting capabilities are excellent, but they require you either to memorize arbitrary strings of text-and-title-formatting numbers or to call up the formatting tables themselves, with the result that you lose sight of your text. While many commands are assigned to PC function keys, many others (control keys, escape keys, dot commands, and commands preceded with an exclamation point, for

example) are not. Thus, if you are to learn the program, you must either implement the function key assignments yourself, which can be done using the customizing procedures, or (my recommendation) learn it without referring to the PC's own function key approach. The latter method has the additional advantage that the program's "native" commands are highly mnemonic (B for back, T for top, and so forth).

Spellbinder 5.40 does not directly support the use of color in its "out of the box" form. This statement, however, is somewhat misleading for it's hard to believe that anyone would select the product who did not intend to make full use of its custom configuration capabilities, which include some degree of color monitor sup-



EXPANDED FACT FILE

Spellbinder 5.40

Lexsoft Inc.
P.O. Box 1950
Davis, CA 95617
(916) 758-3630

List Price: \$495
(Scientific is \$790,
basic package is \$295)



Requires: 64K RAM, DOS 1.0 or later, one disk drive.

CIRCLE 606 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN, JM
Margins: LM:0, RM:159, AI, AO
Line Spacing: LS:1-3, LF, SA, KN, WC, OC
Character Formats: VP, PS, AP, PW, BO, UL, SP, SB, ST, SC, CB, ASC
Page Formats: LIT, LLL, BL, GR, LP:255, HT, HL, HR, FT, FB, FR, MP
Tabulation Formats: TL, TR, TD, TC
Header/Footer: SL, UM, OF, UP, AN, RN, PA, THF
Multiple Columns: TC, NC, CP:2, UC, GW
EDITING SCREEN DISPLAYS
Nextext Display: RO, CC, LN
Text Display: SL:24, SC:80, WA, FI, ST

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OD, DA, CA
Deletion Formats: CD, WA, WE, LA, LE, SA, SE, PA, PE, PGA, PGE, DA, DE
Character Features: HH, SH, HB
Cursor Movement: CM, CK, SD, NC, NL, NW, NS, NP, NSC, NPG, BL, BS, BP, BSC, BPG, BD, SU, SD, SL, SR, JC, JL, JP, JM, CK
Block Editing Tools: HL, AB, CH, WD, LN, SE, PH, CO, PG, CE, BC, DO, MV, CP, DE, FC, FP, FPG, FT, AR, HA, DF, TM, HF
Search and Replace: FO, CS, CI, CP, AS, WS, WR, ES, FR, VY
Undo Utilities: NA

PRINTER SUPPORT

NP:37, UP, PT, QU, CH, PW, PS, OF

FILE HANDLING

Document File Formats: PD, LM, CT, ASC, DS:36000 BYTES
Document Savings: AB, MS, EN, ER, EL
DOS Facilities: DR, CDR, ADK, CDR
File Import and Export: IM, IAP, IWS, EWS

SPECIAL FEATURES

Spelling Checker: WD:50000, UG, ED, IC, BG, MR, IM, AD, MM, QK
Other: KM, CK, SF, MM, MMD, FP, FS, FE, FF, FL, TM, HA, HS, MA, MA

NOTE: While it is possible to change the formatting of your files, you do so on the condition of a "Save" (S) in the command line. In which case you do not edit or save manually. It is also possible to shorten the length of the screen line, but the only way you get a RETURN (CR) is to use the "Save" (S) and then edit your screen manually. If you are using "Save", you do not edit or save manually.

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Spellbinder provides users with a convenient function key prompt menu at the bottom of the edit screen.



port. The program is designed to incorporate numerous user-defined tables and macros. If the information in the reference manual should prove insufficient for a particular application, the company will supply the more advanced technical/macro manual. It allows you not only to activate color but also to change other basic aspects of the program's operation. If, for example, you want to import WordStar files, you can use a macro that not only strips the so-called high bits but substitutes *Spellbinder's* own formatting codes.

The *Spellbinder* mail-merge macro, moreover, was actually easy to learn. As a rule, however, fundamental program modifications and macros are designed to be made by knowledgeable users only.

Spellbinder's manual has 460 pages, divided into 11 chapters, 5 appendices, an index, and a 45-page IBM PC supplement. Appendix A is the Quick-Reference Guide, but the rest of the manual does not distinguish between reference and tutorial materials. Reading it was a little like going through the instructions that come with the IRS Form 1040: Every sentence was clear in and of itself, but it was hard to skip sentences lest I missed something that would turn out to be important, and after two or three pages I knew little more than I did when I started.

I wish I could end this review on a happier note, for Lexisoft's representatives have been more than gracious, and some power users—my own brother, for one—swear by *Spellbinder*. I'm afraid, however, that I can only swear at and off it.

—Craig L. Stark

SUPERWRITER 1.03

SuperWriter 1.03 is a professional-level program and then some, suitable not only for day-to-day memos, letters, mass mailings, and such, but also check full of commands like "print today's date here." Many of these features come under the category of nonessential, even for a professional word processor, but they are still nice to have. The catch, of course, is that before you can take advantage of *SuperWriter's* features, you have to



EXPANDED FACT FILE

SuperWriter 1.03

Computer Associates International Inc.
Micro Products Division
2195 Fortune Dr.
San Jose, CA 95131
(408) 942-1727

List Price: \$295

Requires: 64K RAM, DOS 1.1 or later, one disk drive
CIRCLE 664 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JM
Margins: RM:250, AO
Line Spacing: LS:1-65, LF, WC, OC
Character Formats: VP, PS, PW, BO, IT, UL, SP, SB, CB, IBM
Page Formats: LIT, LLB, GL, GR, LP:99, HT, HL, HR, FB, FL, FR, PL:16, PW:25, MP
Tabulation Format: TL, FC
Header/Footer: SL, UM, OF, AN, RN, PA, THF
Multiple Column: TC, NC, UC, GW

EDITING SCREEN DISPLAYS

Nontext Display: CC, LN, DF, DK
Text Display: SL:24, SC:80, WA, WD

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ED, CA
Deletion Formats: CD, WE, LE
Character Formats: AC, HH, SH
Cursor Movements: CM, CK, SD, SC, NL, NW, NSC, BL, BSC, BD, SU, SD, SL, SR
Block Editing Tools: BE, AB, MV, CF, DE, AR, DF, AW

Search and Replace:

FO, CS, AS, FS, FR, VY

PRINTER SUPPORT

NP:40, PT, ES, EO, QU, CH, PW, PS, OF

FILE HANDLING

Document File Strategy: FD, DF, CI, CS, CT, OTH

Document Saving: AB, DB, EN, ER, EA, EL
DOS Facilities: DR, CDK, ADK, SDR
File Import and Export: IM, IAP, EAL

SPECIAL FEATURES

Spelling Checker: WD:2000, UG, US, ED, AL, IM, AD, MM
Other: KM, MM, MMD, DV, TV

File #	File Name	File Size	File Type	File Description
1	SWDEF	1024	Text	Default settings file
2	SWLTR	1024	Text	Letter template file
3	SWMEM	1024	Text	Memo template file
4	SWSTY	1024	Text	Style sheet file
5	SWCOPY	1024	Text	Copy command file
6	SWDEF	1024	Text	Default settings file
7	SWLTR	1024	Text	Letter template file
8	SWMEM	1024	Text	Memo template file
9	SWSTY	1024	Text	Style sheet file
10	SWCOPY	1024	Text	Copy command file

SuperWriter uses small triangles to distinguish its many embedded text-formatting commands.

learn how to use them. And until you do, the sheer number of commands can be overwhelming.

SuperWriter has so many advanced features that it's hard to decide which ones to single out for special mention. There are more than 100 simple embedded commands. Some let you set such things as spacing and justification (left, right, both, or center text). Others let you choose between broken or solid underlining or set the intensity of boldface. Still others let you enter not just the date, but also such variables as the page, time, or filename in either your text or in your headers and footers (using multiple lines, of course).

Another important design feature of the program is its underlying flexibility. Virtually all word processors have defaults for margins, spacing, and page size that are suitable for most purposes, but rarely exact

matches for any given user's tastes. *SuperWriter* offers an elegant approach for changing these and about 35 other default settings. You simply type the appropriate commands in a text file called SW.DEF, and the program will wake up already set the way you like it.

The *SuperWriter 1.03* manual suggests that if you use several standard formats you can set up several program disks, each with its own SW.DEF file. Another approach—particularly for hard disk users—would be to keep several "potential" SW.DEF files on the disk: SW.LTR for letters, SW.MEM for memos, and so on. Then, before loading the program, it's a simple matter to create an appropriate SW.DEF using the DOS COPY command to copy, say, SW.LTR to SW.DEF. This is not quite as convenient as the "style sheets" you find on some word proces-

sors, but it's definitely a close second.

SuperWriter also has one of the best mail-merge features I've seen. The mail-merge function automatically reformats text to adjust to the length of data being inserted; it even allows conditional commands so that you can select specific groups of files from a database.

What's more, the mail-merge feature will work with data files that use fixed-length fields, commas, or carriage returns to indicate fields. This covers a wide range of database programs, including the likes of *dBASE II*, *dBASE III*, and *R-base*. Another nice touch is that the program can use files of any length as data files for mail merging, even though *SuperWriter* itself can only edit files up to 32K bytes long.

On a color monitor, even the color capability is used to its best advantage. Text is shown in bright white on a black background, while special print characters such as return and tab markers are clearly distinguished with light blue, letting them stand out without being distracting. The status line is a quiet amber.

THORNS AMONG THE ROSES There are some thorns among the roses, of course. *SuperWriter* was originally designed before the IBM PC came to dominate the microcomputer market. In fact, it is a direct descendant of the ancient CP/M program *Magic Wand*. Unfortunately, that heritage shows. Most programs for the PC today come with PC-specific, step-by-step instructions for installing and using the program. *SuperWriter* comes with an all-purpose manual that often refers you back to your computer hardware manual for details.

Other legacies of the *SuperWriter* heritage include an installation appendix that has a single set of instructions for installing the program in its DOS, CP/M, and Concurrent CP/M versions. There's nothing tricky here, but a new user is likely to be confused by the paired commands to either PIP A:=B:;* (CP/M) or COPY B:*=A: (MS-DOS).

More troublesome are the occasionally roundabout instructions for using the program. One example: "The Find command can be repeated by pressing the Repeat Find function key . . . Refer to the Function Key Assignments Appendix to find

out which key your keyboard uses."

Aside from the possible confusion for the new computer user, the manual is an exceptionally good reference tool. I had no trouble finding the commands I needed, and no trouble understanding the instructions.

The reference manual is organized so that you can use it as a learning tool as well. Unfortunately, you may have to use it this way—especially if you're new to heavy-duty word processing.

The official tutorial consists of a slim (15-page) pamphlet entitled *10 Minutes to SuperWriter*. This gives a whirlwind tour of how to type, spell check, and print a letter without even a glance at any editing commands more advanced than those for moving the cursor. Ideally I'd like a tutorial that's longer than 15 pages, but substantially shorter than the 200 pages or so in the reference manual.

Given the short tutorial and the large number of commands, *SuperWriter 1.03* rates as hard to learn but easy to use, apart from an exception like formatting numeric columns with tabs, which ends up being clumsy no matter how well you know the program.

Print formatting in *SuperWriter* is part WYSIWYG and part embedded control codes. Tabbing, in particular, uses both approaches. *SuperWriter* does show tab settings in text on-screen. But rather than allow several ruler lines in a document, each with its own tab settings, *SuperWriter* allows only a single, global tab setting. Change the global setting at any time, and all the tab stops in the file change with it.

One way around this formatting limitation is to use *SuperWriter's* embedded control codes for tabs. This procedure complicates the screen considerably and forces you to print out the file to see what it really looks like. A second choice is to ignore the tab feature and manually add spaces to the text, relying on *SuperWriter's* WYSIWYG capability.

The moral here is that if you depend on numeric tables and tend to use different formats in the same document, *SuperWriter* is probably not your word processor of choice. But bear in mind that this stands out as a problem primarily because the other features of the program—from simple cursor movement to complex mail-merge

variables—are well thought out and easy to use.

SuperWriter's spelling checker is better thought of as a typo finder. All it does, really, is find words it doesn't recognize, show them to you, and let you tell it which ones to mark in the file. Then you search for the marked words in the file and manually correct them. You'll probably want to buy someone else's spelling checker to go with this program.

SuperWriter is clearly a program for the serious wordsmith, preferably one who has already had some experience with word processing. Designed long before pop-up menus, mice, and other trendy "user-friendly" features became popular, it demands more than some other word processors. But it also delivers more than most. If you're willing to invest the time to learn the program, it will do just about anything you ask of it.—M. David Stone

VOLKSWRITER DELUXE 2.2

Volkswriter was one of the first word processors written for the IBM PC, and it's still one of the best. Its latest incarnation, *Volkswriter Deluxe 2.2*, combines one of the fastest editors around with an easy-to-use set of print-formatting tools and a competent print-merge module. While it lacks some of the luxury features available in higher-priced programs, *Volkswriter Deluxe* performs like its automotive namesake, providing dependable basic service at an affordable price.

Good service from your software begins with easy setup and good tutorials, and this is an area where *Volkswriter Deluxe* excels. Setup is almost completely automated with a set of batch files that copy the necessary program files to your working disk or hard disk. In addition to the well-written, well-indexed manual, the program comes equipped with an excellent set of on-disk tutorials that allow you to experiment with the program while you learn it without making you refer once to the printed page.

Volkswriter Deluxe's opening menu of-



fers a number of editing and printing options and will display the contents of your current disk or subdirectory on demand. If you opt to create a new document or retrieve an old one, the program takes you to its editing screen, where you can start typing without further ado. If you want to edit the text, you enter commands directly using the function keys, either alone or in combination with the Alt, Shift, or Ctrl keys. If you forget which function key summons which feature, you can call up a four-line crib sheet that has one- or two-word descriptions for each key. If you need a more-detailed reminder, you'll have to consult the manual. The program does not offer detailed on-disk help, but if you've gone through the tutorials, you probably won't need it.

Volkswriter Deluxe uses the function keys to invoke all editing commands, so

you don't have to keep track of modes. When you press alphabetic or numeric keys, you're entering text; hit a function key, and you're issuing a command.

A SPEED DEMON If you demand speed from your programs, *Volkswriter Deluxe* won't let you down. It scrolls from screen to screen at top speed—by the time you release the command key, the command is complete. The same is true for jumping to a page or to the beginning or end of a document.

For true computer speed freaks, *Volkswriter Deluxe* offers an additional bonus. It has a utility program that will speed up the keyboard repeat response on the IBM PC AT almost threefold. This speedup gives lightning-fast cursor movement, although you need to type with a light touch to keep the letter keys from re-

peating when you don't want them to.

As a WYSIWYG editor, *Volkswriter Deluxe* provides on-screen formatting for margins, tabs stops, and print enhancements, like boldfacing and underlining. To control more complex formatting, you invoke the program's format screen. You can create a default format as well as specialized formats for a document or group of documents. If you want your letters printed single-spaced with proportional spacing and right justification, you could store that format in a file called VWFOR-MAT.LTR. Then, whenever you print a document with the extension .LTR, the program will use your letter format.

This method, while convenient, does have one major limitation. Although you can use more than one format in a document, the editor uses only the first format when displaying page breaks. Thus, to prevent widows and orphans in your printed version, you have to leave the editor and use the program's print-preview option to scan the page breaks. If any fall in the wrong place, you must return to the editor and insert your own page breaks by embedding commands in text. Similar commands, prefixed by double periods, allow you to create headers and footers and insert boilerplate files into a document.

Just as *Volkswriter Deluxe* will automatically install the proper format for a document, it can also install a customized keyboard layout. For instance, if you set up a French language keyboard file with the extension .FRN, it will go into effect whenever you edit a document with that extension. To print your French document, you can create a printer translation table to instruct the printer to combine characters for the desired accented letters.

Because *Volkswriter Deluxe* uses straight ASCII files, it functions easily as a program editor and has little difficulty in accepting files from other programs. Its TextMerge form-letter feature accepts the ASCII data files produced by database managers such as *dBASE II* and by many BASIC programs.

However, the program's ASCII document files may contain embedded codes to control print enhancements and formatting features such as headers and footers. To strip out these codes and make a document ready for telephone-line transmission,



EXPANDED FACT FILE

Volkswriter Deluxe 2.2

Lalistic Software Inc.
411 Pacific St
Monterey, CA 93940
(408) 373-4718

List Price: \$295



Requires: 128K RAM, DOS 1.1 or later, two disk drives.
CIRCLE 609 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM

Margins: LM:1, RM:250, AJ

Line Spacing: LS:1

Character Formats: VP, PS, PW, BO, IT, UL,

SP, SB, ST, CB, IBM, CT

Page Formats: LIT, LLT, GL, HT, HL, HR,

FT, FL, FR, PL:1, PW:250, MP

Tabulation Format: TL

Header/Footer: SL, OF, UP, AN, RN, PA

EDITING SCREEN DISPLAYS

Nextest Display: CC, LN, PN, DF, DK

Text Display: SL:24, SC:80, SA, WD

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OD, IM

Deletion Format: CD, WE, LA, LE

Character Features: HH, HB

Cursor Movement: CM, CK, NC, NL, NW,

NSC, NPG, BL, BSC, BPG, BD, SU, SD,

SL, SR, JC, JP

Block Editing Tools: BE, AB, CO, MV, CP,

DE, AR, DF

Search and Replace: FO, CS, AS, VY

Undo Utility: NA

PRINTER SUPPORT

NP:13, UP, PT, CH, PW, PS, OF

FILE HANDLING

Document File Strategy: FD, LM, DF, CT, ASC

Document Saving: AB, DB, MS, EN, ER, EL

Doc Facilities: DR, CDK, ADK, CDR

File Import and Export: IM, IAL, IWS, EAL

SPECIAL FEATURES

Other: CK, CS, SF, MM, GR, FL



Volkswriter Deluxe provides users with a pop-up, four-line "crib sheet" to remind them which function keys to use.

Volkswriter Deluxe provides a "communications filter" that writes a clean ASCII file to disk.

WHEN THE GOOD GET BETTER

While *Volkswriter Deluxe* does a fine job of covering the word processing basics, it has a few shortcomings. It lacks an undo key, so a slip of the fingers can delete large blocks of text, with no possibility of retrieval. Its on-line help is skimpy. And its search-and-replace function is case sensitive, so that you may have to go through a document several times to catch all of the occurrences of a word.

But it's still a leader in its price category. And it's about to get even better. Just before *PC Magazine* went to press, I had a quick look at a beta-test version of Lifefree Software Inc.'s newest offering, *Volkswriter 3* (to be priced at \$295), which will replace *Volkswriter Deluxe* in the company's product line. It will run with DOS 2.0 and later and can run from floppies or a hard disk, although it needs a hard disk and DOS 3.0 if you want to use the program's new print-spooling feature.

The version I saw still had a few bugs, but when Lifefree works them out, it will be a honey of a program. In addition to the base features in *Volkswriter Deluxe*, *Volkswriter 3* will have a built-in spelling checker with a 170,000-word dictionary, smart hyphenation that knows where to hyphenate words by itself, on-screen math, column sorting, print-queue management, and perhaps most valuable, a big boost in print-formatting talents. You can use up to 15 different formats in a *Volkswriter 3* document, and the program will display the proper page breaks when you mix formats with different line spacing.

Volkswriter 3 also boasts an automatic reformatting option that will realign jagged lines within a paragraph when you're done inserting or deleting text. Other new features include decimal tabs, DCA RFT conversion, IBM PC Network support, and the ability to use DOS wildcards in the directory display.

For good coverage of the word processing basics, few programs in the PC market beat *Volkswriter Deluxe*. And *Volkswriter 3* looks like it will provide the same basic coverage with some luxury add-ons as well.—Dara Pearlman

WORDPERFECT 4.1

WordPerfect 4.1 is nearly flawless in design—it's easy to use, flexible, and chock-full of word processing power. The program is packed with features, and none of them ever get in your way.

For starters, *WordPerfect* is not copy protected and is easily installed on any system. Because the program is composed of five disks that include printer drivers, learning files, dictionary, and thesaurus, *WordPerfect* is at its best when installed on a hard drive.

To set or change the system defaults

and the custom-color screen (including the screen size if you have a full-page monitor), you can enter *WordPerfect* with the WP:n command to use the setup menu.

WordPerfect's command structure is tied to the function keys in conjunction with the Shift, Ctrl, and Alt keys. Satellite Software International provides a color-coded function key template to help you find your way around. In addition, a powerful macro system with conditional, chaining, and repeating functions is available. Macros can be named or used with Alt-alpha key combinations. The macro system helps streamline *WordPerfect* operation, and it's extremely easy to learn and use.



EXPANDED FACT FILE

WordPerfect 4.1

Satellite Software International
248 W. Center St.
Orem, UT 84057
(801) 224-4000
(801) 321-5906 (support)

List Price: \$495



Requires: 256K RAM, DOS 2.0 or later, two disk drives.

CIRCLE 665 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:0, RM:250, AL, AO
Line Spacing: LS:1-500, LF, KP, KN, WC, OC
Character Formats: VP, PS, AP, PW, BO, IT,
UL, SP, SB, ST, SC, CB, ASC, CT
Page Formats: LIT, LLT, LLB, GL, GR,
LP:500, HT, HL, HR, FT, FB, FL, FR, MP
Tabulation Format: TL, TD, TC, DC
Header/Footer SL, UM, OF, UP, AN, RN, PA,
PR, THF
Multiple Columns: TC, NC, UC, GW

EDITING SCREEN DISPLAYS

Nonstop Display: RO, CC, LN, PN
Text Display: SL:24, SC:80, WA, ST

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, CA
Deletion Formats: CD, WA, LA, PGA, PGE
Character Features: AC, IH, SH, HB
Cursor Movement: CM, CK, NC, NL, NW,
NSC, NPG, BL, BSC, BD, SU, SD, SL,
SR, JC, JL, JP
Block Editing Tools: HL, AB, CB, WD, LN,
SE, PH, CO, PG, CE, BC, MV, CP, DE,
FC, AR, HA, DF, AW, HF, FN
Search and Replace: FO, BK, CI, CP, WW, AS,
FS, FR, VY
Undo/Utility: UD, UR, RP

PRINTER SUPPORT

NP:191, UP, PT, ES, EO, BU, CH, PW, PS

FILE HANDLING

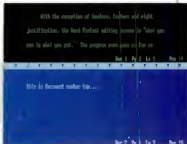
Document File Strategy: FD, LM, DF, CS, OTH
Document Saving: NB, DB, MS, AT, AD, EN,

ER, EL

DOS Facilities: DR, MU, CDK, ADK, CDR,
ADR
File Import and Export: IM, IAP, IBM, IWS,
IOTH, EAL, EIBM, EWS, EOTH

SPECIAL FEATURES

Spelling Checker: WD:13000, UG, UD, US,
SW, DB, ED, IC, BG, MR, IM, AD, QK
Other: KM, CK, CS, MM, FP, FS, FE, FF, AI,
AT, GR, FL, SC, OG, DV, TV, HS, TH,
MT, MA



WordPerfect's windowing function allows users to do split screen or full screen editing of two documents.



CONVENIENT EDITING AND FORMATTING With the exception of headers, footers, and right justification, the *WordPerfect* editing screen is WYSIWYG. The program can even go as far as displaying up to five snaking newspaper-style columns across the screen. *WordPerfect's* approach is to show as much text as possible; all you see besides the text is the document name, page number, and line and page position displayed on the 25th line of your display. An optional ruler line can also be displayed.

The text display can be divided at any line for split-screen editing of two documents. If you wish, each document can have its own full screen. Screen updating and scrolling are lightning fast.

All the cursor movement keys are conveniently located on the numeric keypad. You can move to the beginning/end of the document, screen, and line (out to column 250); move by page; and move by word. A GOTO key takes you to any character, paragraph, or page number, and a replicating control (Esc) allows you to move in multiple steps.

WordPerfect's formatting is convenient to use and effective. Hidden formatting codes for every specification can be revealed and edited easily. All page, line, and print formatting is dedicated to a single key, which saves time. The only thing I would like to see changed is the tab setup. For example, with margins and line spacing, the tab settings pop up on a single-line menu on the 25th row. It would be more desirable to set tabs while in the text instead of having to use a menu.

Because *WordPerfect* is document-oriented, you do not have to paginate a document, and page breaks are shown on-screen automatically. You can manually issue a hard page command at will.

Text blocking goes a good distance beyond cut and paste. *WordPerfect* allows you to cut a block of text and then go on to another task—the cut text can be retrieved at a later time. Blocking text for functions such as flush right, centering, bold, underline, super/subscripts, spelling, case conversion, sorting, printing, appending to another file, and saving is supported. I would have liked the ability to block text for saving to an ASCII file as well. *WordPerfect's* block feature is used to specify

keeping text together during a page break.

Up to two multiple-line headers and footers can be defined, and they can be positioned on the page using centering, tabs, flush right, or dedicated position settings. Page numbering can be set within a header or footer or on its own, where there are seven different page-number positions, including alternating left and right. A convenient suppress feature suppresses headers, footers, and page numbering individually or collectively for any page you desire.

Search and replace is a breeze with *WordPerfect*. Search works in both forward and backward directions (unfortunately, replace operates only forward), and a buffer conveniently remembers the last entry. Search and replace is not case sensitive, but both global and verify modes

■ With the exception of headers, footers, and right justification, the *WordPerfect* screen is WYSIWYG.

are available. Wildcards are not supported. Search and replace can find and replace *WordPerfect's* formatting codes, which can be a real timesaver.

STELLAR SPELLER *WordPerfect's* spelling checker shines—it's very fast and almost intuitive. The speller checks the document or word that's on the screen, and you can check a separate document in the second window. Replacements are suggested automatically, and a tap on the corresponding letter key inserts the correct word in its proper place and case. If the speller can't find the word, you can try to look it up in the dictionary by using wildcards or correct the error on the screen. Options of adding the word to the user dictionary (which is a *WordPerfect* file), skipping the word once, or skipping it for the rest of the document are also available. After the spelling check is completed, a total

word count is displayed—a handy feature for writers that is also available without going through an entire spelling check.

WordPerfect's developers at SSI have finally added a thesaurus, and it's much more powerful than you might imagine. A word look-up can be accomplished just by putting the cursor on a word or entering a word into the thesaurus system. You can select up to three levels of synonyms, and levels are divided into nouns, adjectives, and verbs.

WordPerfect handles its many features with the same finesse engineered into the rest of the program. For example, line advance moves text up and down half a line; a binding-width command alternates the text page to the left and right for book binding; three levels of undelete are available; and a center-page command centers the page vertically. A date/time stamp not only inserts the current date into a document, but a special code can be inserted into the text so that the correct date will always be entered from the system clock. Documents can be locked with a password protection system; proportional spacing is supported; and custom footnoting and endnotes are available. User-prompted hyphenation has been streamlined in the latest version; an auto indent that's tab-based can indent on both the left and right margins; table of contents, index, and list generation are all supported; a line/box draw feature can use any character or system-generated graphic design; a left margin release is available; and both redline and strikeout work well. Four-function math is flexible; print merge using comprehensive field data is a powerful feature; a sorter that numerically or alphabetically sorts up to nine key fields is a new addition; outlining can be customized; overstrike and widow/orphan protection have been improved; and, finally, a new type-through feature turns your printer into a self-correcting typewriter.

WordPerfect defines over 191 printers (you can define your own with a supplied program), and although I was not too happy with the printer setup menu (the documentation does not explain it well), *WordPerfect* enables you to define up to six different printers to be used simultaneously. Background printing is always enabled; print jobs can be sent to any of the printers

defined; and jobs can be deleted and their order changed. Printer codes can be inserted anywhere in the text.

File handling is another *WordPerfect* forte. The list files key brings up a directory of any disk or directory that you choose. You can change the directory, rename, copy, delete, import (WP files or ASCII), print, or look at any file. *WordPerfect* even has a fantastic word facility that will find any entered word or string and display the document names where the string can be found.

A DOS shell command allows you to exit the *WordPerfect* program, perform DOS commands, and return to the point in the document where you left off. You also have the ability to import any file at the cursor position and can save the file you are working on as you write (as an ASCII or WP file). A timed backup system will perform this task for you automatically if you enable it.

Finally, *WordPerfect's* documentation is among the best I have seen. It's not perfect in some places, but it's way above average. An on-line help system aids the user by displaying instructions for each command when the correct key combinations are pressed.

WordPerfect is a finely engineered piece of software that not only does what's intended but goes much further. It's hard to imagine a better and more powerful word processor than this one, but then again, there's always the next revision.

—Dawn Gordon

WORDSTAR PROFESSIONAL 3.31

WordStar is the perfect word processor for people who like to tinker under the hoods of their programs, even though the package works fine with just one pass through the installation program. You can use *WordStar* as a word processor or as a straight ASCII text editor with all the same commands. Although not as tightly married to the IBM PC as more recent programs, it incorporates several surprisingly modern features. *WordStar*

may be ancient by microcomputer standards (almost 7 years old), but it still has lots of spunk left.

The *WordStar Professional 3.31* package comes with the *WordStar 3.31* word processing program, *MailMerge 3.3* for form letters, *CorrectStar 3.3* for spell checking, and *StarIndex 1.0* for specialized printing, including automatic generation of indexes and tables of contents. MicroPro International Corp. offers site licensing plans, corporate discounts, and local area network agreements for sales of *WordStar Professional*.

WordStar is a classic word processor. Because it was originally designed for a generic CP/M computer, you can run *WordStar* using only the central array of white keys on the PC keyboard, plus the

Shift and Ctrl keys. This is particularly suitable for speed typists since it eliminates most hand movement, and ideal for people who must sometimes work on CP/M or non-IBM compatible DOS systems.

To a beginner, the *WordStar* editing commands may seem obscurely organized, but after years of use they seem to develop their own internal logic and consistency. All editing commands use the Ctrl key in combination with letters and a few symbols. The frequently used one-letter commands (such as cursor movement and deletion) are organized topographically on the keyboard rather than mnemonically. The famous "WordStar diamond" of the S, D, E, and X keys controls simple left-right-up-down cursor movement, for instance. All one-character commands are



EXPANDED FACT FILE

WordStar Professional 3.31

MicroPro International Corp.
33 San Pablo Ave.
San Rafael, CA 94903
(415) 499-1200

Requires: 192K RAM (128K without *CorrectStar*), DOS 1.1 or later, two disk drives.

CIRCLE 668 ON READER SERVICE CARD

List Price: \$295

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:1, RM:240
Line Spacing: LS:6-9, LF, OC
Character Formats: VP, PW, BO, UL, SP, SB, ST, CB, ASC
Page Formats: LIT, LLB, LP:255, HT, FB, MP
Tabulation Format: TL, TC, DC
Header/Footer: SL, OF, UP, AN, RN, PA
Multiple Columns: NC

EDITING SCREEN DISPLAYS

Normal Display: RO, CC, LN, PN, DF, DK
Text Display: SL:23, SC:79, WA, WD, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ED, IM
Deletion Formats: CD, WE, LA, LE, LB
Character Features: SH, HB
Cursor Movement: CK, SD, NC, NL, NW, NSC, BL, BSC, BD, SU, SD, SL, SR, JM, CK

Block Editing Tools: HL, AB, CO, MV, CP, DE, MR, DF

Search and Replace: FO, BK, CS, CI, WW, AS, WS, FS, FR, VY

Undo/Utility: NA

PRINTER SUPPORT

NP:26, UP, ES, EO, CH, PW, PS, OF

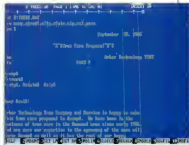
FILE HANDLING

Document File Strategy: LM, PG, DF, CT, OTH
Document Saving: AB, MS, EN, ER, EA, EL

DOS Facilities: DR, CDK, ADK, SDR
File Import and Export: IM, IAP, IWS, NEA, EWS

SPECIAL FEATURES

Spelling Checker: WD:65, UG, UD, ED, IC, BG, MR, IM, AD, QK, QL
Other: CK, CS, SF, MM, MMD, AJ, AT, HD, HA, HS



This *WordStar Professional* text-editing screen shows both dot-formatting commands and mail-merge form (using the "&" as the mail-merge indicator).



displayed in an eight-line menu at the top of the screen, suppressible by changing the help level.

The two-character commands are most often mnemonically (but sometimes arbitrarily) defined. Typing Ctrl and the first letter brings up another menu with all the possible second letters. Nowadays we call this a pull-down menu. Although the *WordStar* menus are uglier than those of slicker, more-modern programs, the command strategy is virtually identical to the power mode of *Framework*, for example.

KEY INFORMATION In current versions of *WordStar*, the cursor keys duplicate Ctrl-key combinations the way you would expect. You can define the PC's function keys however you want in the installation program. Unfortunately, *WordStar*'s Backspace key simply duplicates left cursor movement and the Del key is actually a destructive backspace (a CP/M convention). Fixing these keys is one of the most popular *WordStar* patches.

A Ctrl-QQ before any command (or character) repeats the command (or character) until you stop it by pressing the space bar. While most commonly used for a global reformat, it can also continuously scroll the screen, so you can sit back and read your whole document without touching the keyboard. There's even a nine-level speed adjustment for any reading speed.

WordStar retains very little formatting information with the saved file. It doesn't remember, for instance, whether spaces that precede a line are the result of manual spacing, a tab, or a centering command. You cannot globally change a paragraph indentation throughout a document by any method except a clever search and replace. A right-margin change requires a document reformat. Some display or printing information (such as headers, footers, and page length) are inserted into the text with dot commands, two-letter abbreviations preceded by a period in the first column.

The *MailMerge* part of *WordStar Professional* is simply another program overlay file. *MailMerge* printing is very similar to regular printing except that it recognizes additional dot commands for including other files or generating form letters, and includes an IF dot command for conditional printing. *WordStar*'s mailmerging is so

■ Users of the obsolete SpellStar spelling checker will find a real marvel in CorrectStar, which rivals the best standalone products.

cleanly designed that it's not surprising to see it unashamedly imitated in more-modern products, such as *Microsoft Word*, albeit with somewhat more flexibility.

Users of the nearly obsolete *SpellStar* spelling checker will find a real marvel in the fancy and modern *CorrectStar*. With 65,000 words (based on Houghton Mifflin's *American Heritage Dictionary*), in-context display, suggested corrections, and full menu control, *CorrectStar* can rival the best standalone or integrated spelling checker.

The extensive *WordStar* tutorial—an introduction to computers, a quick *WordStar* lesson, and six more detailed lessons spread out on two disks—is at times witty but more often tedious. Unlike the *WordStar* program, the tutorial does not make use of the PC's cursor keys and requires that you use Ctrl-letter combinations.

Almost everyone needs a plain ASCII text editor sometimes, and *WordStar* supplies one. It's called "non-document mode" and is basically the same as ordinary word processing document mode, but without word wrap and with real tabs. For people who do both writing and programming, using one editor for both jobs is a real pleasure.

Although *WordStar* cannot directly output ASCII files that were created in document mode, *WordStar*-to-ASCII converters abound. Such programs are so easy to create that beginning programmers often write one as a matter of course.

TIPS FOR AN AGING STAR Any *WordStar* user can easily come up with a list of desired enhancements. For exam-

ple, the higher memory capacity of many PCs makes overlay files unnecessary, and the entire *WordStar* program could easily fit into 128K bytes. *WordStar* keeps only about 16K bytes of text in memory at one time, and the program would work faster if it retained much more. It does all file I/O in slow 128-byte blocks and does not recognize subdirectories. With each advancing version of DOS, the *WordStar* Run command (an otherwise modern feature) has become more and more dangerous. Although at this late date *WordStar* is almost entirely free of bugs, a "disk full" message is sometimes cause for concern to even veteran users because it may cause all work to be lost.

WordStar's programmers are so shy about getting close to the system hardware that *WordStar* will run on virtually any PC compatible, even those less than 99.44 percent pure. In fact, a few patches will make *WordStar* work on any computer running DOS or even CP/M-86, just as long as it has a way to position the cursor on the display. *WordStar* doesn't hog memory, so it politely runs in almost all multitasking DOS extensions. Nobody asks questions like, "Will *WordStar* run on IBM's Enhanced Graphics Adapter?" Run on it? Why, a relatively simple patch lets *WordStar* use the EGA's 43-line display mode!

Although *WordStar* is showing its age, it still has many enthusiastic supporters in the PC community, including me. I've done all my IBM PC (and CP/M) writing and program development with *WordStar* and have yet to see any reason to give it up. Of course, those of us who swear by *WordStar* often have our versions patched to the hilt and always run it off a RAMdisk. For this review, I ran an unpatched *WordStar Professional 3.31* on a two-floppy system, and I can see why it often gets slammed for speed problems and some implementation clumsiness.

When you use *WordStar*, you are working with a word processing archetype that still reveals its pre-PC origins. When patching *WordStar*, you are part of a proud tradition. For some people, particularly those afflicted with IBM PC hegemony and user-friendliness, this is a severe deficiency. But for others it is a vital link with microcomputer history.

What can MicroPro do with this 7-year-old product? Perhaps it can develop an extensive installation and patching program and remarket it under the name *WordStar Classic*. I'd be the first in line to buy it.

—Charles Petzold

XYWRITE II PLUS 2.0

XyWrite II Plus 2.0 has long enjoyed something of a gunfighter's reputation: blazingly fast, but a bit ornery and hard to get to know. Thanks in large part to a new set of documentation, however, XyWrite's exceptional power and speed have now become a realistic option for a far wider group of potential users than could previously have considered the program.

XyWrite II Plus is a totally command-driven program, and while its tutorials make use of such full words as **SAVE**, these quickly give way to the more cryptic abbreviations (SA) that power users invariably prefer. The program employs function keys with **Alt**-, **Shift**-, and **Ctrl**-combinations in order to implement commands and makes full use of the keypad's cursor and scrolling functions. You execute *XyWrite* commands from a command line at the top of a three-line screen header that includes a convenient prompt line and user-controllable ruler. The **Ins** key toggles between the default insert and over-write modes.

XyWrite's normal text display is almost perfect WYSIWYG. Formatting commands, which show up in text as highlighted triangles, cause the length of the line they appear in to be extended by the width of the triangles. The meaning of each command triangle is shown on the prompt line when you place the cursor on them. You can also view them in the "expanded display" mode, which shows all formatting codes bracketed in European-style quotation marks.

Fully windowed two-file operations are possible, and you may choose either a vertical or horizontal split screen (with selected proportions) or alternate full-screens for

each file. DOS commands can be executed without leaving *XyWrite*, and it permits CHDIR commands, though it does not provide full path support. All 256 ASCII characters are directly keyable.

Where *XyWrite* acquires its reputation for meanness is partly in the way that it steals the normal keyboard interrupts. This theft makes it incompatible with several programs (such as *Spotlight*) and with a number of other utilities.

SCROLLER DERBY CHAMP By way of compensation, its speed is astonishing. Forward and backward scrolls are nearly instantaneous, whether page by page or top to bottom of the document. Searching for the letter *a* and replacing it with the Z called for in our TREES.OCR test file took

only 0.5 second in *XyWrite*—6 times as fast as *PeachText* and 29 times as fast as *Spellbinder*.

Apart from its speed, perhaps the most attractive aspect of the program is the ease with which you can customize its operations at a number of different levels. If you don't like the arrangement of the function key assignments (most of which seem rather arbitrary and unplanned), or you wish to implement additional commands (such as to move the cursor instantly to the next sentence or paragraph), you simply call up the keyboard table (IBM.KBD) and edit it, just as you would any file of text. For those who have never been able to accommodate the PC's placement of the Left Shift and Backslash keys, for example, the manual takes you step by step through the



EXPANDED FACT FILE

XyWrite II Plus 2.0

Xyquest Inc
P O Box 372
Bedford, MA 01730
(617) 775-4439

List Price: \$79.95



Requires: 128K RAM, DOS 1.0 or later, one disk drive

CIRCLE 667 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Line Spacing: LS:1-9. LF, SB, SA, KP, KN, WC, OC

Page Formats: LIT, LLB, LP-255, HL, HR, FL, ER, MP

Tabulation Format: TL, TR, TD, TC
Header/Footer: SL, UM, OF, UP, AN, RN, PA
Multiple Column: NC, CP:23, UC

EDITING SCREEN DISPLAYS

Text Display: SL:22, SC:80, WA

TEXT ENTRY AND EDITING

TEXT ENTRY/EDITING
 Typing/Editing: FC, FT, ID, CA
 Deletion Formats: WA, LA, LE
 Character Features: AC, SH, HB

Cursor Movement: CM, NC, NL, NW, NSC, NPG, BL, BSC, BPG, BD, SU, SD, JC, JL, JP, CK

Block Editing Tools: HL, AB, CH, WD, LN, SE, PH, CO, CE, MV, CP, DE, FC, AR, HA, DE, TM, AW, HE, FN

Undo Utilities UD

PRINTED BLIND

NP:71, UP, PT, ES, EQ, CH, PW, PS, OF

FILE HANDLING

Document File Strategy: FD, LM, CT, ASC
Document Saving: AB, DB, MS, EN, ER, EL
DOS Facilities: DR, MU, CDK, ADK, CDR
File Import and Export: IM, IAP, EAL

SPECIAL FEATURES

Other: KM, CK, CS, MM, FP, PS, FE, FF, AI, AT, GR, FL, SC, DV, TV, TM, HS, MS, MT, MA



XyWrite It Plus gives users a choice of a WYSIWYG screen format (above) and a vanilla format with on-screen formatting commands.

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- ☐ I'm interested. But first, I'd like to review your demo disk and print samples. Enclosed is \$5 for a complete Evaluation Kit.

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process of switching them. Similarly, you can create "dead" accent keys for foreign languages. Full alternative keyboard files are supplied for Portuguese and for the Dvorak layout, and these can serve as models for extensive changes.

In the same way, XyWrite permits you to customize your printer table (within the printer's limitations) so that, for example, boldface on your screen creates shadow printing, screen underlining activates an italic font, and so on. The printer table also contains settings for your color display and default information you want to keep about page lengths, top and bottom margins, control of widows and orphans, automatic backup or not, initialization strings, automatic final formfeed, and the like. And if you need to substitute characters or strings for normal ASCII printwheel positions, XyWrite will accept a full substitution table.

XyWrite's second level of customization includes its Save/Get facility, an unphonetic term for what others call a gloss-

includes the use of labels, conditional branching, and up to 100 temporary Save/Get for variables and intermediate results.

Block moves (including numeric columns), deletes, and copying procedures all show XyWrite at its fastest and its best. Its footnoting capabilities are extensive (down to using different separators for footnotes that wrap between pages), as are its index and table-of-contents generators. And I found its mail-merge facilities excellent and easy to learn. XyWrite is capable of performing calculator-level arithmetic either on its command line or within the text. It does not like commas within numbers, however, although it will tolerate them if the cursor is on the leftmost digit of the operand. If you wish to preserve commas in the result, you must add them in yourself.

NEW DOCUMENTATION To evaluate the effectiveness of XyWrite's new documentation—which heretofore was abysmal—I turned to a schoolteacher with limited computer experience (none on the IBM PC) who had never seen the program. She successfully learned XyWrite through the tutorial manuals on her own and now uses the program to prepare her tests, assignment sheets, letters, and the school literary review. As a longtime power user of XyWrite, I meanwhile reveled in the clarity of its new reference manual, which consistently and intelligently foresees (and answers) the next question a person interested in using all the program's customizing flexibility will ask.

XyWrite II Plus is not, of course, without its flaws, especially in the area of printer control. It does not support proportional printing; vertical margins do not work reliably; its printer pause control doesn't stop printing exactly where you want it to change a printwheel; and it doesn't keep track of width changes occasioned by changing fonts. Further, snaking text for multiple-column printing is not supported. These are concerns that may be decisive for some users; the company says they are addressed by XyWrite III, whose release is expected shortly. In the meantime, however, I haven't used any word processor that even tempts me to knock XyWrite II Plus off my desk.

—Craig L. Stark

■ Apart from XyWrite's speed, perhaps the program's most attractive aspect is the ease with which you can customize it at different levels.

sary function or a keyboard text macro. With a couple of keystrokes you can save any text to a letter or number key; subsequently pressing Alt and that key gets the stored text. Save/Get assignments can be stored on-disk and can even be loaded automatically via XyWrite's STARTUP.INT file (the program's equivalent of DOS's AUTOEXEC.BAT). Not only text, but whole sequences of formatting commands can be stored as Save/Get keys, creating an elementary level of programming. And for the more advanced user, XyWrite has a programming capability that

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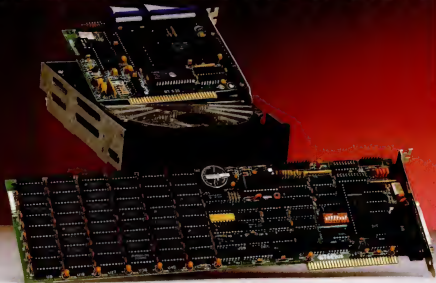
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FULL BLOWN



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CIRCLE 235 ON READER SERVICE CARD





The IBM PC was the first microcomputer to reach the desktops of senior management. At first, the familiar putty-gray box was often just a status symbol, but executive curiosity soon led to a desire to use the new machine. These new users wanted to try word processing first—that way they could fire off short letters and status memos without the usual delays associated with secretarial or word processing department services.

Many executives gave the likes of *WordStar* and *MultiMate* a try first and found there was more word processing power in those products than they needed, or even wanted, to learn how to use. After all, they just wanted to create occasional short documents using standard correspondence formats; they had no need to write tome-sized business plans and consulting reports.

Personal word processors, originally designed for the home market, were the solution. These products were easy to learn and use, just like the corporate products, but they didn't have as many complicated features and were quicker at getting the job done.

Today there are as many personal as professional word pro-

THE BUSINESS
OF
WORDS

PERSONAL

PERSONAL WORD PROCESSORS WERE
INVENTED FOR HOME USE, BUT THEY ALSO
MAKE THE BUSINESS OF WORDS MORE
ACCESSIBLE TO BUSY EXECUTIVES.

cessors for the IBM PC. They sell well to casual users in corporations and equally well in the home market. Many are good enough to satisfy a professional writer doing a small job.

Personal word processors use a wider variety of approaches and features than professional or corporate products. Be-

PC EDITOR'S CHOICE

PFS:WRITE—PFS:WRITE C nearly defines personal word processors. It takes less than an hour to learn this capable program, and the latest version adds a spelling checker that should keep PFS:WRITE on top of the best-seller list.

MindReader—MindReader 2.0's artificial intelligence approach to word processing is the sort of technological breakthrough we don't normally expect in this business. Try out MindReader—you'll spend hours trying to fool this word machine's built-in brain.

TEXTRA—Tired of lofty software prices? Give TEXTRA 3.1A a try. The new version costs a mere \$25 (the original goes for \$10), yet it offers excellent personal word processing features at astonishing speeds.

ZenWord—ZenWord 1.00 is a new and serious contender among personal word processors. It's inexpensive and does much more than many of its competitors.

cause of their home-market orientation, some are geared toward new users and children. Because of their corporate orientation, many mimic, and are even junior versions of, corporate word processors. One new product even contains enough artificial intelligence to keep a slow, misspelling, typist on a good writing track. And many are just plain fun to use.

Even if you don't consider yourself a prime candidate for a personal word processor, you'll be fascinated by what you find and may be tempted to try out one or two of these products for yourself.

—John Dickinson

BANK STREET WRITER

Bank Street Writer is no newcomer to the word processing scene—it has established itself as one of the leading products in the personal word processing market. The program is simple enough to instill confidence in aspiring word processing users but may not be powerful enough to accomplish most business word processing tasks.

Codeveloped by Intentional Education, Franklin E. Smith, and the Bank Street College of Education, the program pioneered the introduction of word processing concepts in a form that encouraged young students to write. The program's adult following is the by-product of a well-designed, easy-to-use package. However, this first-generation pioneer contains some

clumsy and primitive features that can impede the writing process.

Editing and writing are completely separate processes in *Bank Street Writer*. You create text in a writing mode and then enter the edit mode (press Esc) to do any text manipulation or formatting. You return to the writing mode (press Esc again) before you add or modify text.

The top quarter of *Bank Street Writer's* screen display is reserved for the editing functions menu. The primary menu contains common edit commands, including Save, Erase, Move, Copy, and Replace. Selecting Other from the primary edit menu moves you to a submenu. These concern file functions such as Rename, Delete, and Prepare Data Disk.

These submenu commands insulate you from the DOS environment and it is convenient to have disk commands housed on menus inside the word processor. Alt key combination commands handle text



EXPANDED FACT FILE

Bank Street Writer

Brookview Software

17 Paul Dr.
San Rafael, CA 94903
(415) 479-1370

List Price: \$79.95



Requires: 64K RAM, DOS 1.1 or later, one disk drive.

CIRCLE 669 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JC
Margins: LM10, RM125, AL
Line Spacing: LS:1-3, SA
Character Formats: BO, UL, CB, ASC
Page Formats: LIT, LJB, GL, GR, LP:125, HL, FL, FR, PL:21, PW:14

Tabulation Formats: TL, TC
Header/Footer: SL, OF, AN, RN, PA, PO, THF

EDITING SCREEN DISPLAYS

Nontext Displays: RO, DK
Text Displays: SL:18, SC:80, WA

TEXT ENTRY AND EDITING

Typing/Editing: FC, ID, BA
Deletion Formats: CD, DA
Cursor Movement: CM, CK, NL, NSC, BSC, BD
Block Editing Tools: HL, AB, MV, CP, DE, AR, DF

Search and Replace: FO, CS, CI, WW, AS, VY

Undo Utilities: UD, UR

PRINTER SUPPORT

UP, PT, CH, PS

FILE HANDLING

Document File Strategy: FD, DF, ASC, DS:32000

BYTES

Document Saving: MS, SW, ER, DL

DOS Facilities: DR, MU, CDK
File Import and Export: IM, IAP, EAP

SPECIAL FEATURES

Other: TM



Bank Street Writer uses a "point and press return" menu system for all its editing functions.

formatting such as bold, underlining, and centering. These commands may be entered while in writing mode.

Moving through a menu with as few commands as *Bank Street Writer* should be easy. Instead, it is the most awkward feature of the program. Once in edit mode, you scroll through the menu by using either the Tab key or the Space bar—an unlikely set of keys for scrolling quickly and accurately. The Tab key moves right through the menu, the Space bar moves up and down between the two rows of menu choices, and the Shift key in conjunction with the Tab key will move backward.

Since the Tab key on the PC is situated just below the Esc key and the Esc key is *Bank Street Writer's* method for toggling between editing and writing modes, I'd often find myself accidentally departing the edit screen during my attempted menu selection and entering writing mode. I've seen many schemes for menu selections, but this one is the most foreign to me.

Bank Street Writer's decidedly child-directed slant is most discernible in its prompt messages. For example, to move a block of text, the program asks you to place your cursor at the beginning of the block (press Return), place your cursor at the end of the block (press Return), and then place your cursor on the desired location for the block (press Return). As if this weren't sufficient, it asks you to verify that you really want the text moved. It constantly asks, "Are you sure?" in order to verify all of your edit actions. If you still manage to make a mistake, the Undo and Moveback commands let you recover, but even these undo commands ask you if you are sure you want to undo. Making matters worse, moves and copies are limited to 15 lines of text.

Bank Street Writer supports an unlimited number of printers. You configure the program by answering a few questions about the printer. A print-to-screen option lets you preview before printing to paper, and you may print to disk.

Document file handling is convenient. A document is resident in memory (and unnamed) when editing. You can save blocks of text to a file and save revisions of a document to a new filename without any major contortions. Document size is limited to 32K bytes, which is adequate for per-

sonal word processing needs.

The replace features of the program are indicative of *Bank Street Writer's* straightforward approach. Both search and replace are activated with the Replace menu selection. You are prompted to type the word to find and its replacement. Next a window appears on-screen and asks you whether to keep the search case sensitive and whether to replace whole or partial words.

Bank Street Writer handles page formatting with ease. Choosing Format from

■ Bank Street Writer has made great strides toward promoting simplicity of design.

the main menu invokes a page of print parameters including left margin, print width, page numbering, and header and footer options. The major problem I encountered is that you cannot easily change formats within a document. The way I managed to insert single-spaced print in a double-spaced document and to mix margin settings was to stop the printer, reenter the document, format the next portion of text, and continue the print. The technique is slow, but it gets the job done.

Perhaps the program's biggest annoyance is its sluggishness. There is a very noticeable cursor hesitation in editing, positioning the cursor, and especially in marking a block of text. Blocking portions of text causes such a long cursor delay that I often opted for a character-by-character deletion, simply because it was faster.

WHAT'S THE PASSWORD? My oddest encounter with *Bank Street Writer* stemmed from the fact that the program treats all file extension names as "passwords." Passwords are optional three-character names that allow you to protect your documents from other users. (They are apparently meant more for the program's youthful audience than as a real security device.) Passwords work well when

you create them using the program (you are restricted to alphabetical passwords). However, when I tried to read in the *PC Magazine* test files from my disk, the program protected the file. Although the program does not allow numerical passwords (which were used for the test filename's extension), it encrypted my file and would not let me access it. I had to summon a list of file passwords with a utility program supplied by *Bank Street Writer* and rename the file as a *Bank Street* file before I could read it.

The 55-page documentation is easy to read, but sparse in the places you need the most help. The sections on print formats and utilities were particularly uninformative. The document does not include a single screen shot or illustration—a striking omission for a program that caters to the novice. The flip side of the program disk includes an interactive tutorial, but you must load BASIC to run it. The customer-support staff is very pleasant, but when it came to technical questions, they had to refer me to the program's designer.

Life in the *Bank Street Writer* world is linear. There is only one way to do everything and no way to do things quickly. There's one way to move the cursor, one way to search through text, and one way to proceed through the menus. This one-way strategy gives children and novices a clear-cut idea of how to proceed but puts handcuffs on adults and young whiz kids who will ultimately transcend prompts and look for shortcuts. Experienced users should be able to bypass the menus. A multileveled command design would solve this problem.

At this time *Bank Street Writer* is copy protected and is not recommended for hard disk systems. Broderbund is correcting many of the program's shortcomings with a new version of the program, which will offer hard disk support, an integrated spell-checker, and a way to override menu selections with mnemonic commands. The new version promises to be faster.

Bank Street Writer has made great strides toward promoting a user-friendly interface and simplicity of design. It may be quite appropriate for newcomers in a computer environment. But in its present incarnation, *Bank Street Writer* is too limited to be a strong contender in the business environment. —Robin Raskin

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CUT AND PASTE

If simplicity is a virtue, then *Cut and Paste* is the most virtuous word processor I've ever seen. It handles most basic word processing functions with ease, but those basics are all it handles. This makes *Cut and Paste* significantly more productive than using a typewriter, but not so much more powerful that it can reap the many benefits of a word processing environment. The program is easy to learn, but that's primarily because it doesn't give you much to learn. The program's name just about says it all: You can cut and paste text.

The list of what *Cut and Paste* can't do is considerably longer than the list of what it can do. *Cut and Paste* does not provide for any sort of character formatting (underline, bold, centering, and so on). It can handle only left-justified, ragged-right text, has limited cursor-movement control, and, annoyingly, can only delete characters to the left of the cursor. There are no search-and-replace capabilities, nor is there any sort of print preview. Once you learn how to use the program, which takes only about 15 minutes, you'll spend the rest of your time looking for ways to overcome its limitations.

The program's creators, believing that the novice would be paralyzed with fear at the thought of using DOS, created a proprietary operating system for *Cut and Paste*. If you entertain thoughts of ever importing or exporting ASCII files from any other program, forget it. *Cut and Paste* contains a complete operating environment that allows you to format and copy disks, delete and rename files, but not copy a single file in order to create a backup. Company representatives told me the idea is to simplify the word processing process by creating a sheltered environment for the user. This sheltered environment hogged a lot of valuable disk space that could have been used to offer more commands and features. And the non-DOS system means that the only way to leave the program is to reboot your computer.

Cut and Paste's screen display is sparse and simple. The display contains eight basic commands that appear on the bottom line. These are Save, Print, Catalog

(which leads to the operating system commands), Cut (which blocks text and deletes it), Paste (which inserts the cut text), Indent (which indents the entire paragraph), Unindent, and Buffer (which stores a passage of deleted text). I'd swap Indent and Unindent (and put up with using tabs) for more useful features, preferably a search and replace. Menu selections are made by leaving the writing mode and using the cursor keys to select the action. To the program's credit, you can also (in most instances) use Ctrl key commands to bypass the menus and speed up the command entry process.

The program is poorly prompted, so no matter which menu selection you scroll to on your screen, the prompt "Arrows select command, Return does it" remains constant. Command entry was in fact quick and responsive, and many of the hesitations found in other programs of this genre were thankfully omitted.

Certain features of the program are handled very nicely. The text buffer—which

has no size limitations other than the maximum document memory size—offers considerable move, delete, and copy flexibility. Since saving and loading documents can be done without disturbing the contents of the buffer, you can cut and paste text within the same document or from one document to another. The program is quick and responsive, and the writing workspace on the screen is large and uncluttered with extraneous messages.

EASY PRINTING The print options are terrifically straightforward, probably the easiest I've ever seen. The program supplies two preset layouts, one for standard stationery and one for envelopes. A third print format template lets you create your own customized margin settings by indicating your desired top, bottom, left, and right margins. The program allows you to create simple headers (one line and centered only) and page numberings and has an automatic widow and orphan control that appears to work reasonably well. De-



EXPANDED FACT FILE

Cut and Paste

Electronic Arts
2755 Campus Dr.
San Mateo, CA 94403
(415) 571-7171
(415) 571-ARTS

List Price: \$34.95



Requires: 64K RAM, DOS, one disk drive.
CIRCLE 668 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL
Margins: LM:0, RM:80, AL
Line Spacing: LS:1-2, SB, WC, OC
Character Formats: VP, AP, ASC
Page Formats: LIT, LLT, LLB, GL
Tabulation Format: TL
Header/Footer: SL, AN, PA, THF

EDITING SCREEN DISPLAYS

Text Display: SL:20, SC:80, WA

TEXT ENTRY AND EDITING

Typing/Editing: FC, ID, BA
Deletion Formats: CD, DA
Character Features: SH, HB
Cursor Movement: CM, CK, NSC, BL, BSC, BD
Block Editing Tools: HL, AB, MV, CP, DE, AR, HA
Undo Utility: UD

PRINTER SUPPORT

AE

FILE HANDLING

Document File Strategy: FD, DF, OTH, DS:6350
WORDS
Document Savings: NB, MS, EN, ER, DL

DOS Facilities: DR, MU, CDK File Import and Export: NIA, NEA



Cut and Paste's text-editing screen is simple and easy to read; the program's eight basic commands are displayed on the bottom of the screen.

spite the skimpy 13-page, overcute, less-than-substantive manual, the user will have no problem figuring out how to use this program.

The folks at Electronic Arts tell me that *Cut and Paste* might more aptly be named "My First Word Processor" because the program provides a painless and barebones introduction to word processing. But for \$34.95, I'd be more inclined to buy a first program I could grow with.

—Robin Raskin

DISPLAYWRITE 1

1.00

The *DisplayWrite* line of word processors is IBM's adaptation of the renowned *Displaywriter* standalone word processor for the PC. *DisplayWrite 1 1.00* stands in the shadows of its more powerful siblings, *DisplayWrite 2* and *DisplayWrite 3*. But this little junior is a powerful word processor with a very affordable price tag. Furthermore, *DisplayWrite 1* is straightforward, easy to learn, fast, and responsive.

DisplayWrite 1 is a scaled-down version of the popular corporate processor *DisplayWrite 3*. Because it can convert IBM's RFT/DCA files with a single keystroke, it is a welcome choice in the IBM office environment, especially when the word processing work doesn't require a great deal of formatting or involve lengthy documents.

DisplayWrite 1 is based on a very simple design, one that casual users can pick up and remember even if they don't use a word processor daily. You select the task you wish to perform from the program's main menu. The editor's typing area is spacious and uncluttered. It contains two lines of prompts at the top of the screen; another line of prompts appears on the bottom of the screen once a command selection has been invoked.

Most of the editing commands are entered with the function keys. A plastic template that sits atop the keyboard defines them for you. For example, the F4 function key invokes the block mode, which includes the Move, Copy, and Delete commands. Submenu commands are acti-



DisplayWrite 1 1.00
IBM Corp.
100 N.W. 51st St
Boca Raton, FL 33432
(800) 447-4700

EXPANDED FACT FILE

Lab Price: \$99



Requires: 128K RAM, DOS 2.1 or later, one disk drive.
CIRCLE 667 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN
Margins: LM0, RM 145, AJ
Line Spacing: SB, SA
Character Formats: VP, AP, BO, UL, SP, SB, CB, ASC
Page Formats: LIT, LIT, GL, GR, LP 99, HT, HL, TBR, FT, FL, TR, PL 99, JW 145, MP
Tabulation Format: TL
Header/Footer: SL, UM, AN, RN, PA, THF

EDITING SCREEN DISPLAYS

Normal Display: RC, CC, LN, PN, OF
Text Display: SL, SO, SC, SO, WA, WD

TEXT ENTRY AND EDITING

Typing Editing: FC, IT, ID, BA
Deletion Formats: CD
Character Entries: HH, SH, HB
Cursor Movement: CM, CK, NC, NL, NPG, BSC, BPG, JP, CK
Block Editing Tools: HL, AB, MV, CP, OL, FC, AR, DF
Search and Replace: FO, CL, WW, AS
Undo Utility: NA
FILE HANDLING
Document File Strategy: FD, DF, ASC, DS 32000 BYTES
Document Saving: NB, MS, EN, EA, DL

DOS Facilities: DR, MU, SDK

File Import and Export: IM, IAP, IIBM, EAP, EIBM

SPECIAL FEATURES

Others: CS, GR, FL



DisplayWrite 1's text-editing screen is spacious and uncluttered compared with many other personal word processors.

vated by pressing the first letter of the word or using the cursor keys to select the desired command.

Much of your formatting success with this program is based on a working knowledge of *DisplayWrite 1*'s special character codes. *DisplayWrite 1* inserts these codes into the text as graphic symbols, indicating line format changes, hyphenation, page ends, carriage returns, temporary margin changes, indents, and so on. The second status line on the top of the screen indicates the presence or absence of special format codes, and the code name appears on the status line whenever the cursor is on a code in the text area. So, for example, a number sign (#) in your text indicates a centered line. These hieroglyphics are a bit unnatural, but once they become familiar, it is easy to spot-check your document for formatting accuracy.

Formats within a document are highly

adjustable, precisely because you can tell *DisplayWrite 1* to insert symbols to represent margins, page ends, indents, and other format commands. A line-adjust and a page-adjust command are included to quickly realign your page after any major reorganization. The automatic page-adjust feature can be disabled so that you can keep short lines (for example, those used in the creation of charts and lists) short when necessary.

I had some slow moments reformatting documents created in ASCII format. *DisplayWrite 1* recognized all my file's carriage returns as discretionary or soft carriage returns. It will only accept *DisplayWrite 1* carriage returns as required (hard) returns. Since the program is so partial to its own carriage returns, I had to manually reinsert carriage returns at the ends of paragraphs.

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Signed _____ PC128



line with a soft carriage return at the end, you are restricted to deleting characters only on the line you are working on. If you need to delete characters that carry over past the current line of text, you must treat it as a block delete. I found this restriction annoying, particularly when I wanted to eliminate short phrases that carried over to the next line.

SOME SURPRISES When using the page- and line-adjust commands to create or revise a document, *DisplayWrite I* lets you manually hyphenate a word that is too wide for the margins. When a line of text is too long, the program prompts you to manually move the cursor to the desired location for the hyphen. The ability to hyphenate is important; most other personal word processors ignore the issue altogether.

Another useful and exciting feature is free-form cursor draw. You can use a set of commands to enter a simple cursor-draw mode and create bar charts, boxes, simple line drawings, attractive page dividers, and borders.

DisplayWrite I can handle some sophisticated features including indents, sub- and superscripts, bold facing, underlining, headers, and footers. A ruler line indicating the center and all tab stops is permanently displayed on the screen. The search-and-replace facility, while not case

freedom in page design since you can specify pitch, margins, justification, and the positioning of text from the top and bottom of the page.

SOME SHORTCOMINGS The casual user will suffer from the program's lack of a fully WYSIWYG screen. *DisplayWrite I* does not have a print-preview facility. Mistakes made in headers, footers, pagination, widows, or orphans can only be seen and corrected once the document is printed.

While you can print *DisplayWrite I* files on any IBM-compatible printer, only IBM printers (IBM Compact, Color, Graphics, and Matrix Printers) are actively supported by the program.

DisplayWrite I's greatest shortcoming is, without a doubt, the documentation. Nearly one-half of the manual is devoted to getting started, detailing how to get started with a single drive, a dual floppy, a hard disk, and an AT. The installation is not complex enough to warrant such overkill, and the result is a confusing and redundant document. The remainder of the documentation is poorly organized. The commands are listed alphabetically rather than functionally, which is a serious shortcoming when you're trying to learn the product. The tutorial uses a hard-to-read handwritten script scrawl to identify important parts of the lesson.

DisplayWrite I's on-line help facility is simplistic and not context sensitive. When you call for help (F1), you simply get an alphabetical list of the text functions with a brief description of each function.

Despite the documentation, the program is a success. *DisplayWrite I* reminds me of an old-fashioned but well-organized general store. Its use of special format codes in the document appears old-fashioned in this day of pop-ups, pop-downs, and WYSIWYG, but there's a comfort and method to them. There is also a functional integrity to this program. Finding the command you want when you want it is no problem at all. The speed and responsiveness of the program are commendable and, like the old general store, you'll find you can cut your shopping (or word processing) time in half because everything is in view and the goods are manageable.

—Robin Raskin

■ DisplayWrite 1's functional integrity makes finding commands no problem at all.

sensitive, does let you replace or skip to the next occurrence of the word. A Source Edit command lets you use the *DisplayWrite I* as a text editor for the creation or revision of program code. A Stop Key command lets you stop and enter special format codes that allow you to later enter personalized information. This facility can work like a simple mail-merge function. The Format command allows considerable

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CIRCLE 234 ON READER SERVICE CARD

EASY 1.00

If you like colorful screens, pop-up menus, fully integrated spelling correction, and a simple, if somewhat limited, approach to word processing, then *Easy 1.00* from MicroPro is bound to catch your eye.

MicroPro is best known for *WordStar*, a program with a reputation for overwhelming the beginner. MicroPro makes a point of saying that *Easy* is nothing like *WordStar*, and there is no question that *Easy*'s menus are much simpler and cleaner than their equivalents in *WordStar*. Still, my reaction, from the moment I started using the program, was that it acts very much like a cut-down, menu-driven—and much easier-to-learn—version of *WordStar*.

WordStar is not a menu-driven program, despite anything you've heard to the contrary. Its optional, so-called menus are really context-sensitive help screens that list the Ctrl key commands available at any given moment. *Easy* uses true pop-up menus that you must go through in order to perform a given function.

For example, to boldface text in *WordStar*, you use the Ctrl key commands to mark the beginning and end of the text to be boldfaced. To do the same thing in *Easy*, you hit F2 to see the pop-up menu, then choose Boldface, either by typing B or by moving the cursor to the appropriate choice. You then follow the instructions for marking the beginning and end of the boldfaced text. The commands are different—and *Easy*, unlike *WordStar*, puts the boldface on-screen—but the logic is the same.

WordStar logic also crops up in some more unfortunate ways. To reformat text, for example, you have to go through the file paragraph by paragraph. And if you switch from single-spaced to double-spaced text on screen, *Easy* will not double-space between paragraphs.

WHEN EASY MEANS USELESS *Easy* also adds a few mistakes of its own. In trying to simplify the search-and-replace feature by eliminating "nonessential" options, MicroPro has made that feature nearly useless. The search function is case insensitive and will look for whole words

only. This limitation might not be a problem, except that the replace function doesn't preserve case. This means you can't trust *Easy* to replace anything without confirmation. In the *PC Magazine* test script, I had to run through the file four times to replace *Treee*, *Trees*, *treee*, and *trees*.

I also found a serious bug. With right-justified text, *Easy* doesn't handle tabs correctly; the indent at the beginning of a paragraph often winds up moving to the right of the tab stop.

Very much on the plus side for *Easy* is an undo command for restoring deleted text. Another advantage of the program is good printer support: There are 126 printer choices in the installation menu, many of which support more than one printer. With *Easy*, you can make use of the little-known

WordStar line-height command to double-space on an Epson or IBM PC printer without needing to format with double-spacing on-screen.

Yet another plus that the program has going for it is *CorrectStar*, *Easy*'s integrated spelling checker. This program includes such features as suggested corrections and automatic replacement of errors, using a 67,000-word dictionary.

If you're new to computers, you should also appreciate the tutorial. The on-screen tutorial is broken into several sections and includes an opening screen that lets you choose which sections to go through. As with any tutorial that uses a program simulation instead of the actual program, this one suffers from not letting you play with the program to explore interesting paths. On the other hand, the on-screen tutorial



EXPANDED FACT FILE

Easy 1.00

MicroPro International Corp.
33 San Pablo Ave.
San Rafael, CA 94903
(415) 499-1200

List Price: \$150



Requires: 256K RAM for DOS 2.x, 320K RAM for DOS 3.x, two disk drives.

CIRCLE 566 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN, JM
Margins: LM:0, RM:240
Line Spacing: LS:1-3, LF
Character Formats: VP, PS, PW, BO, IT, UL, SP, SB, CB, IBM
Page Formats: LIT, LJB, GL, GR, LP:255, HL, HR, FL, FR, PL:123, PW:48, MP
Tabulation Format: TL, TC
Header/Footer: SL, UM, OF, AN, RN, PA, THF
Multiple Columns: NC, CP:95, UC, GW

EDITING SCREEN DISPLAYS

Nontext Display: RC, CC, LN, PN
Text Display: SL:23, SC:79, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: IT, ED, CA, IM
Deletion Formats: CD, LA
Character Features: HH
Cursor Movement: CM, CK, NC, NL, NW, NSC, BL, BSC, BD
Block Editing Tools: HL, AB, MV, CP, DE, MR, HA

Search and Replace: FO, CI, WW, VY
Local Utility: UD

PRINTER SUPPORT

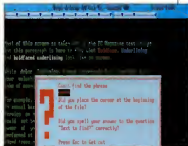
NP:7126, PS, OF

FILE HANDLING


Document File Strategy: LM, DF, CT, OTH, DS:360000 BYTES
Document Saving: AB, MS, EN, ER, EL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IAP, IWS, NEA, EWS

SPECIAL FEATURES

Spelling Checker: WD:67000, UG, US, ED, IC, BG, MR, IM, AD, QK, QL



Easy's error messages are unusually helpful, a function that could be important for the novice user.



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and paper tutorial together do a good job of covering most important features in the program.

Easy produces *WordStar*-compatible files. The program even uses many *WordStar* dot commands for formatting, although the manual downplays that feature, since most new users find dot commands confusing. This compatibility with *WordStar* may just make *Easy* the personal word processor of choice if you have the need to exchange files regularly with a *WordStar* user.

Finally, for those who like their word processing in color, *Easy* offers a rainbow: Normal text is green, underlined text is blue, and boldfaced text is amber, all against a black background. The ruler line is blue and white while error messages are red and white. Unfortunately, the slow screen update on a color monitor makes it easy to type at a faster speed than the screen can handle.

All in all, *Easy* is a fine product if you're a novice user looking for a good first word processor—and an even better choice if you intend to graduate to *Wordstar*.—M. David Stone

EINSTEINWRITER 7.3

If you're looking for a word processor that is easy to learn and use, fast, and relatively foolproof, *EinsteinWriter 7.3* should be a strong contender. This program has most of the power and features that any businessperson would need. The program is completely menu-driven; the hand-holding on-screen messages that guide you through almost every keystroke and command make it a snap to get started and become familiar with the program—especially if you're an insecure user.

EinsteinWriter's distinct yellow foreground on a black background makes it noticeable, although if you find these colors distracting or not to your liking you can choose from among ten color schemes when you set up your version of the program. United Software Industries provides a plastic template to be placed around the function keys and two plastic inserts to be placed on the keyboard to explain the dif-

ferent key combinations. The walk-through tutorial in the documentation takes you only about 30 minutes to complete and introduces you to the program's basic structure and features.

SEVEN MODES *EinsteinWriter's* opening menu gives you a choice of entering seven program modes: edit, compose, layout, print, file, help, and quit. You can easily switch among these modes by either hitting the Esc key and selecting the mode from the main menu or by hitting the appropriate function key (F1 for edit, F7 for print, etc.). Within each mode, clear instructions at the bottom of the menu explain how to select an option and work in that mode.

You can create or edit text while in edit mode. My biggest gripe about this pro-

gram is the edit mode's cluttered screen. The first three lines contain a ruler line, the DOS date and time, the name of the file you're working on, a message indicating insert or overwrite mode, and the line and column number you're on. The bottom four lines give a variety of commands that can be executed by pressing the Ctrl key and a single key mnemonic. At other times even more instructions and commands appear.

The screen is much too busy for my taste and leaves little room in the work area. Since the Ctrl key commands are relatively easy to remember—Ctrl-C, for instance, centers text and Ctrl-B boldfaces text—I would remove these from the screen. Unfortunately, the only thing that can be toggled off is the date and time; however, while this review was being



EXPANDED FACT FILE

EinsteinWriter 7.3

United Software Industries
1880 Century Park E.
Los Angeles, CA 90067
(213) 556-2211

List Price: \$169.95



Requires: 128K RAM, DOS 2.0 or later, one disk drive.

CIRCLE 666 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN, JM
Margins: LM:L, RM:R, LM:R, LM:R, LM:R, LM:R
Line Spacing: LF, WC, OC
Character Formats: VP, PS, AP, PW, BO, IT, UL, SF, SB, CB, ASC
Page Formats: LIT, LIT, LIT, LIT, LIT, LIT, LIT, LIT
HT, HL, HR, FB, PL, FR, PL:20, PW:16, MP
Tabulation Format: TL, TR, TC, DC
Header/Footer: SL, OF, UP, PA, THF

EDITING SCREEN DISPLAYS

Nontext Display: RC, CC, LN, PN, DF, DK, DA, TI
Text Display: SL:18, SC:76, WA, WD, FI

TEXT ENTRY AND EDITING

Typing/Editing: FC, ID, DA, CA
Deletion Formats: CD
Character Features: AC, HH, HB
Cursor Movement: CM, CK, NC, NL, NW, NS, NP, NSC, NP, BL, BS, BP, BSC, BPG, BD, SU, SD, SL, SR, JC, JL, JP, JM
Block Editing Tools: HL, AB, CH, WD, LN, SE, PH, DO, MV, CP, DE, FC, PP, FPG, FT, AR, HA, DF, AW, HF

Search and Replace: FO, BK, CI, WW, AS, WS, WR, FS, FR, VY
Undo Utility: UD, UR

PRINTER SUPPORT

NP:93, UP, PT, BO, QU, CH, PW, PS

FILE HANDLING

Document File Strategy: FD, DF, CI, CS, AS, CS, DS:61 BYTES

Document Saving: AS, DB, MS, EN, ER, DL, EL, PL

DOS Facilities: DR, MU, CDK, ADK, CDR, ADK
File Import and Export: IM

SPECIAL FEATURES

Spelling Checker: WD:6500, UG, UD, DB, ED, MD, IC, BG, MR, IM, AD, QK
Others: CS, SF, FL, SC, HD, TH



Much of *EinsteinWriter's* text-edit screen is taken up by its comprehensive help menus. The upper menu can, however, be removed.

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Smart vs. 1-2-3:

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Nobody can deny that Lotus 1-2-3 was impressive for its time. But its time was three years ago. And spreadsheets have come a long way since.

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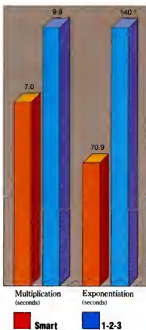
That's not just our opinion, but that of just about any journal worth its salt.

For instance:

"In each test . . . the Smart Spreadsheet was cited as being at least 25 percent faster than 1-2-3. In exponentiation . . . [Smart] was more than 200 percent faster." — PC WEEK

Speed isn't everything, of course. So you'll be interested to know The Smart Spreadsheet outperforms 1-2-3 (Release 1A and Release 2) clear across the board:

- Smart puts no RAM limit on size . . . you can create worksheets more than ten times the size of a 1-2-3 file!
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- Smart includes a full asynchronous Communications program, Algebraic and Formula Calculators . . . all built in.



Speed comparisons of Smart (Version 2.0) vs. Lotus 1-2-3 (Release 2). Findings based on a 50x50 matrix, using approximately 100K RAM.

- Smart lets you create (and edit) custom applications, using simple English commands. That's something else 1-2-3 can't do.
- Smart reads and writes 1-2-3 files and formulas. So you can instantly put new technology to work on old data.

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The Smart Spreadsheet

CIRCLE 373 ON READER SERVICE CARD

written, I was informed that the forthcoming Version 7.4 of *EinsteinWriter* allows you to remove the command menu from the bottom of the screen.

EinsteinWriter has lots of handy fea-

tures that facilitate speedy and efficient manipulation of text, although far too many keystrokes are needed to do just about everything.

For a beginner, it's comforting to be

gently guided through several menus and checkpoints when you are editing a file, but after you become familiar with the program, it is a cumbersome way to accomplish a simple task.

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Allows up to 2,500 customers and 1,000 invoices per month. Invoicing can access Inventory Module. Keeps customer names and addresses. Invoices prints on plain paper or on pre-printed forms. Statements can be printed at any time.

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Allows up to 4,000 parts. Keeps 3 month history of unit sales as well as year to date. With AR, can be used as point of sale system (prints invoices, handles cash). Reports include Inventory Value and Stock Report, Internal and Customer Price List.

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THE "OOPS" COMMAND Although it's hard to believe that you could make any mistakes with this program, *EinsteinWriter* does have an "oops" command that will undo the last command you've requested. Pressing A for Again lets you repeat the last command you've requested.

EinsteinWriter makes use of dot commands to create headers, footers, page numbers, forced page breaks, and other layout specifications.

The compose mode allows you to work with split screens, so you can "compose" your own text while viewing a previously written example. United Software has a database of model letters (called the *EinsteinLetter* Series), which it suggests using with *EinsteinWriter*. I also used the compose mode as an elementary windowing system, although the mandatory horizontal splits are limiting.

You can painlessly establish up to seven different layout configurations per file in *EinsteinWriter*'s layout mode. Simply enter layout mode and follow the instructions at the bottom of the screen. Each layout setting can be invoked by typing a dot command on a blank line at the first column of the left margin at the point where you want the new layout to begin.

You can print multiple copies of a file, designated portions of a file, a series of files one after another, or you can queue files for simultaneous printing while editing another file. While printing is going on, the file is displayed on the screen; you can choose to have this output appear on the screen either fast or slowly. If you choose slow output to screen, you have time to review and possibly change your layout settings.

File mode lets you open, save, store, erase, rename, or delete files. When you name files in *EinsteinWriter*, you can also write a comment to describe the contents of the file for future use. So if you're prone to forgetting the names of your files, you can search a disk for a list of filenames as well as find a file by the comment.

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IN CASE YOU'RE NO EINSTEIN At any time you can hit Alt-H and get a series of help screens to elaborate the functions of the mode you're in. The documentation is clearly organized and well written.

The spelling checker, *EinsteinSpeller*, will be included in Version 7.4 of the program and be available to users of earlier versions. *EinsteinSpeller* scans your document for "problem words"—words that are not in the *EinsteinSpeller* or user-created dictionaries, capitalization problems, or repeated words. As with *EinsteinWriter*, the on-screen menus and constant guidance make it an easy program to use. The two different modes of *EinsteinSpeller* give the advanced user more flexibility.

Interactive mode flags the problem word, gives you several choices for alternative spellings, and then offers you options for the next step. After moving the cursor over your choice and hitting Return, the program saves you from a possible mistake by double-checking your decision. Luckily, *EinsteinSpeller* also has a quicker batch mode option that spell-checks a document or a group of documents at an unattended PC. When the session is over, a report of questionable words is generated.

There's not a lot of room for growth once you've mastered *EinsteinWriter*, and experienced users won't want to fuss with a lot of keystrokes. Despite this limitation, if you need on-screen guidance and assurance, *EinsteinWriter* will give you the confidence you need, along with a lot of handy features. —Jane Mintzer

FRIENDLYWRITER 3.2

FriendlyWriter 3.2, like many personal word processors, attempts to protect the novice user from the complications of DOS by masking it in a more "friendly" format. However, it is very hard to do that kind of alteration well, and although *FriendlyWriter* tries, it rarely succeeds.

Because *FriendlyWriter* is not copy protected, it's easy to install on hard or floppy disk systems. An autoinstallation batch file sets up a directory called *Writer* on a hard disk, and you can set default drives, switch color on or off for use with a



EXPANDED FACT FILE

FriendlyWriter 3.2

Friendlysoft Inc.
3638 W. Ponce de Leon Pkwy.
Arlington, TX 76013
(817) 277-9378

List Price: \$195.95



Requires: 128K RAM, DOS 2.0 or later, one disk drive.
CIRCLE 664 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: J, IM
Margins: LMS, RM, LS
Line Spacing: LS-1-2
Character Formats: VP, AP, BO, IT, UL, SC, ASC
Page Formats: LIT, LLB, GL, GR, LP56, PL14, PW5

EDITING SCREEN DISPLAYS

Nextent Displays: CC, LN, PN
Text Display: SL20, SC78, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: IT, OD, IM
Deletion Formats: CD
Cursor Movements: CM, CK, NC, NL, NW, NSC, BL, BD, SU, SD
Block Editing Tools: HL, AB, WD, SE, CE, BC, MV, CP, DE, FC, MR
Search and Replace: PO, CL, WW, AS, VY

PRINTER SUPPORT

PR144, PS, OF

FILE HANDLING

Document File Strategies: FD, DF, CL, CS, CT, OTD, D5M KBYTE
Document Saving: NB, EN, ER, EL, PL
DOS Facilities: MU, CDK, ADK, SDR
File Import and Export: IAP, IOTD, EAL, EOTD

SPECIAL FEATURES

Spelling Checker: WD7000, UG, ED, IC, BG, MR, IM, AD, QK



FriendlyWriter's spelling checker contains a 70,000-word dictionary and will replace most words in context.

color monitor, and copy and delete files.

FriendlyWriter's opening menu includes these options, along with choices for opening a new file, retrieving an old file, calling up help, and exiting to DOS. But getting to this main menu takes a while; after starting the program, you must first wade through a series of bothersome opening screens.

The text entry screen's top three lines are filled with function key commands and such helpful information as the page number, line number, character position, lines left, and lines free. But the third line is directly above the text you would enter and, because it is not intensified, can easily be misconstrued for written text. On the sides of the screen are vertical lines representing margins, but since they have no reference to the actual size of the page, they can be confusing and difficult to get used to. Aside from its ability to show you justified right margins, the screen's appearance is far from WYSIWYG.

Text entry is slow, and backspacing is jumpy at best. When using the insert mode, I was shocked to find that when I moved to another line the toggle switched the mode right back to overstrike. Even worse was the fact that the tabs were inconsistent. Five spaces are entered from the cursor point instead of from the margin settings. Basically, the entire feel of the program is sluggish and confusing.

To use printer features such as boldface, condensed type, and italics, you must enter specifications from the printer function menu; the options you select affect the entire document. They cannot be used to enhance specific ranges of text, only global settings.

Print formatting is unconventional. You must choose paper sizes such as 5 by 7, 8½ by 11, and 8½ by 14, and horizontal margins of ½ inch to 1½ inches. Top and bottom margin options are ½, ¾, 1 inch, or none. You may select 10- or 12-pitch type and single- or double-spacing. But



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CIRCLE 180 ON READER SERVICE CARD



none of these options can be mixed throughout the document—like print enhancements, they affect the text globally.

The search-and-replace function is available only in the forward direction, and case replacement is not supported. Individual replacements can be made, but you cannot replace things globally.

FriendlyWriter's spelling checker contains a 70,000-word dictionary. Although it's slow, it does find most words in context and replace them using the correct case. The number of unique and total words are displayed before correcting occurs, and although the speller won't skip words it doesn't understand after you tell it they are spelled correctly, you can add words to a user dictionary for this purpose. You must reenter an entire word when making manual, unassisted corrections.

THE GOOD, THE BAD, AND THE FILES

The program has some good and bad file-handling characteristics. Files are not stored under the usual DOS appellations. When you save a document with *FriendlyWriter*, you can give it a 25-character name, but it is stored under names like 002.FW or 006.FW in DOS. That system's not too helpful when you're trying to figure out what the file contains when looking at it from DOS or another program. But within the *FriendlyWriter* environment, you can search for files via string searches and mark identification phrases for convenience.

Some bothersome quirks make file handling difficult. Although you can switch drives and diskettes, the program does not support DOS 2.0 subdirectories, and when you exit the program you are back to the root directory instead of in the *FriendlyWriter* directory. You can import and export ASCII files, but when exporting, the program issues no overwrite warning.

Finally, no matter what you do—whether you save the document you are working on, reset the margins, or leave the editing mode and then return—you are always at the beginning of the document.

Despite its good spelling checker and the better parts of its block handling and file management, I cannot honestly recommend *FriendlyWriter*. It is too confusing, too cumbersome, and too slow.

—Dawn Gordon

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Choosing a modem for your personal computer just got easier.

Modems are remarkable little gadgets. They can connect you and your PC to mountains of data and oceans of information. But up until now, deciding which modem to buy hasn't been easy. So to solve that little problem, IBM is offering two 1,200 bps PC modems. Modems that not only give you the best features currently available on PC modems, but also offer features usually found only on higher priced, higher speed modems.

First, a Brief Introduction to the IBM PC Modems:

The IBM 5841 is a stand-alone modem capable of operating at 0-300, 600 and 1,200 bps in asynchronous mode, and 600 and 1,200 bps synchronous.

Our other modem is the IBM Personal Computer Modem—an internal, half-card modem that operates at 0-300, 600 and 1,200 bps asynchronous.

The Non-Identical Twins

In some respects, these two modems are very similar. For example, they both have Automatic Adaptive Equalization—which means they will continuously fine-tune themselves to compensate for changes and noises on the telephone line. The result is, you can receive data over a wider range of phone line conditions. This is one of those features more often found on faster, more expensive modems.

In addition to automatic answering, both modems offer Adaptive Dialing—which means that if you don't specify either tone or pulse dialing, the modems try tone dialing for one digit, and if that doesn't work,

they automatically switch to pulse dialing.

Both modems will automatically re-dial a number as many times as you tell them to. Or if you prefer, they can switch to an alternate number on a busy signal or a no answer. Once a connection is made, the modems automatically detect and adjust to the incoming transmission speed. They can also initiate an automatic log-on sequence including control characters, ID number and password.

And both modems have extensive "Help" menus, a complete complement of built-in diagnostics, a programmable speaker, and two phone jacks on the back so both your phone and the modem can be connected to the same line at the same time. You can even switch between voice and data without interrupting the phone call.

A Modem with a Memory of Its Own

The IBM 5841 stand-alone modem has some additional features you don't usually find on 1,200 bps modems. For example, the modem is switchable between asynchronous and synchronous modes and has a 20-entry Dialing Directory. Kept in non-volatile

CModems

storage, the directory enables the modem to dial up and log on to systems automatically. This feature is most convenient when the 5841 is used with a fixed-function ASCII terminal such as the IBM 3161 or 3163.

The front panel of the 5841 has a complete array of eight LED Status Indicators to give you a quick visual check on what's happening.

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Why? Because the IBM Personal Computer Modem can use a short slot in the IBM PC XT and the *Portable* PC. It also fits nicely into a full slot in the IBM PC and the PC AT.

Another nice touch is that a PC diagnostic diskette comes with each of these half-card modems.

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You'll be pleased to know that both modems meet the Bell 103/212A and V. 22 CCITT standards. Both

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HOMEWORD, PROFESSIONAL EDITION

Back in the days of overnight success stories, Ken Williams, wunderkind and founder of Sierra On-Line, bought himself a new Porsche. When he got inside he found a huge control panel with not a single word of text to tell him what each button was supposed to do—the Porsche interface was entirely visual. Williams liked the idea and transferred the Porsche's visual icon system to *Homeword*'s menu system. It works surprisingly well.

What initially struck me as silly little pictures hogging one-third of my display screen proved to be a concise hierarchical way to present a word processing menu. The icons give novices an instantaneous memory jogger—the ability to see a representation of the action they are about to select. To leave the writing screen and select an icon, you use the Esc key and then the cursor movement keys. (You need a graphics monitor to use the icon edition of this program. There is a text edition for monitors with no graphics capabilities.)

Once you've outgrown the icons that clutter your screen and slow *Homeword* down, you can disable them. In the "experienced user" mode, you rely on Ctrl key commands that don't require you to leave the writing mode to perform an editing function. With its two-pronged command system, *Homeword* is terrifically easy to use, but packs a surprising amount of power and flexibility into its design.

LOGICAL MENUS The menus are organized in a logical hierarchy in which you are never given more than five menu choices at a time. The main menu has Print, Edit, File, Layout, and Customize icons. Some of the icons are a bit abstract; for instance, the icon for erasing text is a picture of a page with lines across it and a section crossed out. But when you move the cursor to the icon, the program displays the English equivalent on the screen.

From the main menu the icons are organized in a tight, inverted tree. For example, under Layout you can select Align-

ment, New Page, Set Spacing, Print Style, and Headings/Footings. If you find yourself up the wrong menu tree, pressing Esc brings you back out one level.

In addition to the icons, *Homeword*'s main menu includes a handy thumbnail sketch of the full page of text you are working on. While you can't read the text, you get a good indication of how the page's formatting process is going, including spacings, margins and headings. Later, you can select Print to Screen and view the document in its final format. If you get tired of looking at the icon display and crave more writing space (there are only 15 lines of text entry space on the screen), F1 toggles the icons out of view and frees up the display for a full 26 lines of writing space.

While you don't see any page formatting on screen during the editing process, it is easy to keep track of your commands

since they appear highlighted and in plain English on the screen. Unfortunately, it is just as easy to forget to close your format settings once you want them discontinued, since you are never prompted to end a formatting session. For instance, you will see a highlighted "BEGIN BOLDFACE" on the screen, but since the text itself is unaffected you may forget to go back to the icons and halt the boldfacing. You never actually end boldface; you simply begin the normal typeface again. It wasn't until I went into my print preview mode that I realized my entire document was accidentally boldfaced.

The ability to mix formats in a single document is *Homeword*'s strongest feature. *Homeword* can comfortably handle mixed document spacings and margin settings. You can select the icons to alter the page layout numerous times during the document creation process.



EXPANDED FACT FILE

Homeword, Professional Edition

List Price: \$69.95

Sierra On-Line Inc.
Sierra On-Line Building
Corrosgood, CA 93614
(209) 683-6858

Requires: 128K RAM (extended PC RAM support up to 512K), DOS 2.0 or later, one disk drive.

CIRCLE 663 ON READER SERVICE CARD



FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN
Margins: LM:128, RM:128, AL: AO
Line Spacing: SB, SA, KP
Character Formats: BU, UL, CB, ASC, CT
Page Formats: LIT, LIT, LIL, GL, GR, LP:256,
HL, FL, PL:132, PW:128, MP
Tabulation Formats: TL
Header/Footer: SL, AN, RN, PA, THF

EDITING SCREEN DISPLAYS

Text Display: SL:26, SC:128, WA
TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, BA
Deletion Formats: CD, DA
Character Formats: SH, HB
Cursor Movement: CM, CK, NC, NL, NW, NSC,
NPG, BD, CK
Block Editing Tools: HL, AB, MV, CP, DE, AR
Search and Replace: FO, CI, WW, AS
Undo/Utility: UD

PRINTER SUPPORT

PT, ES, EO, PW, PS

FILE HANDLING

Document File Strategy: FD, DF, ASC, DS:256000
BYTES
Document Saving: NB, MS, EN, ER, DI

DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IAP, EAP

SPECIAL FEATURES

Spelling Checker: WD:48000, UG, US, SW, ED,
IC, MR, IM, AD, QL



Homeword uses Macintosh-like graphics to make its functions more accessible to those unfamiliar with word processing terminology.

"...Sherman tank of hard disk drives."

-InfoWorld
July 22, 1985



HAVE A NICE INQUISITION, DEAR.

When InfoWorld's contributing editor, Bernie Zilbergeld and the InfoWorld Review Board said they reviewed our ATplus20™ hard disk drive, we figured that they gave it the routine technical and performance diagnostics.

We didn't expect destructive testing.

They went after our legendary resistance to head-crashes with a vengeance.

HOW TO HENCH.

Mr. Z and his henchpersons began by subjecting the drive to 3,500 stops and starts.

Having survived this, our ATplus20™ drive then had to face increasingly severe physical torture while performing a seemingly relentless series of track seeking operations.

THINGS THAT GO BUMP IN THE DAY.

Further henching resulted in their bumping the table that the ATplus20™ was running on.

Then they dropped one side of the table from a height of six inches.

Next, the entire table was lifted one foot above the floor and dropped.

After cutting power to the drive (thus interrupting the seek test) they bumped the table severely, to see if the ATplus20's unconditional and automatic park and lock feature really makes a difference.

Then, they threw the book at us. Actually, they dropped a rather heavy book *directly* on top of the drive itself.

GUESS WHAT?

You're absolutely right. CORE's ATplus20™ hard disk drive not only survived, but continued to perform as specified.

Each of the rather unnerving tests was repeated a number of times on the same drive, just to be extra sure.

Or mean.

THE LAWYER'S 2¢.

The tests were so nasty that they had to publish the following warning:

"We caution you not to perform any of these tests on your own equipment."

We have to agree.

These tests were done to determine the limits of the drive, and were intentionally extreme beyond the normal use environment.

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CIRCLE 327 ON READER SERVICE CARD





SIMPLE, NOT PATRONIZING Unlike many word processors designed for novices, *Homeword* does not confuse lack of computer savvy with a lack of intelligence. The program avoids prompting you to death. Once you highlight a block for deletion, copying, or moving, it thankfully assumes that you know where you're headed. You are not asked "Are you sure?" or "Is this really what you'd like to do?" or nauseum. There is an Insert Erased Text command if you do happen to make a mistake.

Homeword provides a natural progression for the word processing user. Ultimately, you can disable all prompts that tell you to move the cursor to the beginning or end of your block. Thus, by using Ctrl key commands for command entry, it is possible to reach some impressive processing speeds. Instead of offering two distinct processing environments that force you to learn two different systems, *Homeword* sets up a natural continuum.

Although not as sophisticated as many programs, *Homeword* is flexible enough to let you get around its deficiencies. *Homeword* has no orphan and widow control, but you can use the print preview feature to make sure your page breaks are suitable. After previewing the document you can return to the icons and insert a new page accordingly. The search-and-replace function is easy to use, but basic. There is no global search and replace, nor can you search for codes or wildcards, but you can modify the current search string and replace with case intact.

Homeword uses the PC's function keys for some advanced features such as changing the current directory, changing to and from ASCII files, and inserting print control commands. Some file conversion utilities are included on the program disk to help you convert other formats to *Homeword* and vice versa. These features are not especially well documented and are obviously intended for a more experienced user.

Homeword's printer configuration is as simplistic as that of many personal word processors. The program supports any serial or parallel printer when you answer a brief series of questions about your printer's operation.

The documentation and tutorial are ade-

quate, but by no means strong points. An audio cassette tutorial tape is included to help get you started but leaves off just where it ought to begin. It teaches you to create a file, move the cursor around, type

and save the file. Most people will be able to manage these feats but require some handholding when it comes to page formatting. The manual suffers from omissions (there are some undocumented

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program features), and is generally sparse.

Homeword is not perfect. It can't do some very simple functions, and since *Homeword* redraws the screen before and after any block move, it can be slow. Still it is one of the easiest, most versatile personal word processors I have seen. Novices are attracted to the visuals, and more-experienced users find that it meets most personal word processing needs.

Homeword Speller and *Filer* are easy to learn, and functionally similar. You can access *Homeword Speller* from *Homeword*. *Homeword Filer* has a mail-merge facility to work with *Homeword*. While it may not be the Porsche of word processing, *Homeword* is a great economy vehicle. —Robin Raskin

JUST WRITE 1.01

Just Write 1.01 is produced by the same company that turns out *MultiMate*; naturally, the two programs have much in common. *Just Write*, however, unlike its more complex cousin, is meant for the personal word processor market; within that framework, it does its job.

Just Write is not copy protected, and a "setdrive" program easily installs this word processor on your chosen drive. The main menu has selections for editing an old document, creating a new document, printing, and document-handling functions such as copy, move, delete, and rename. The package includes a rather large keyboard template that is designed to sit on the back edge of the keyboard and that depicts command key assignments for the PC and the PCjr. The program uses the function keys and Ctrl- and Alt-alphabetic key combinations for command selections.

The editing screen consists of two status lines. The top line indicates the document name, page, percentage of the page used, and cursor line and column positions. The bottom status line depicts the line spacing, the insert/overstrike toggle, the pitch, and error message prompts. A format line complete with tabs and margins sits just below the top status line.

Like *MultiMate*, *Just Write* is a page-oriented program. Normally this design

wouldn't be a problem, but the way in which *Just Write* handles pages is not only inconvenient but bothersome. For example, page breaks must be done manually. In addition, when moving around the document, you are confined to the page you are working on until you direct the program to take you to the desired page. A page-combine feature removes the page break on the page you are working on if you should wish to enter more text on that page. But after you use the page-combine function and then issue a page break, the text or an inserted page number must be manipulated to the desired point on the page. Page numbers can be placed anywhere in the document, but they are not automatically added; you have to insert them, and *Just Write* will renumber them.

Cursor movement is slow at best. Moving by word, beginning of line, end of line, sentence, and paragraph requires an inor-

dinate number of keystrokes because you must first indicate the direction the cursor will move and then issue the command.

FLEXIBLE FORMATS *Just Write's* page formatting is extremely flexible. Format lines contain commands for changing not only the right margin (the left margin is altered in the print menu) and tabs but also the line spacing and pitch. New format lines can be inserted anywhere in the document and can even be copied and moved like any other text that is entered. However, I did have a serious problem with the top and bottom margins—basically they do not exist. If you wish to have top and bottom margins, you must enter carriage returns at the top and bottom of each page. This can become annoying, especially when using the page-recombine feature and then the page-break command, since carriage returns must be deleted and re-



Just Write 1.01

Multimate International Corp.
52 Oakland Ave.
East Hartford, CT 06108-9911
(203) 522-2116

List Price: \$145



Requires: 128K RAM, DOS 2.0 or later, DOS 2.1 for PCjr, one disk drive.

CIRCLE 661 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL
Margins: LM 0, RM:132, AL
Line Spacing: LS:1-3
Character Formats: VP, BU, OL, CB, ASC
Page Formats: GL, GR, LP:179, PL:14, PW:8, MP
Tabulation Format: TL, DC
Header/Footer: FA

EDITING SCREEN DISPLAYS

Numeral Display: RC, CC, LN, PN, DP
Text Display: SL:21, SC:79, WA

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OD, CA
Deletion Formats: CD, WA, LA, SA, PA, PGA
Character Features: HB
Cursor Movement: CM, CK, SD, NC, NL, NW, NS, NP, NSC, NPG, RL, BS, BP, BSC, BPG, BU, SD
Block Editing Tools: HL, AB, WD, PG, MV, CP, DE, FC, MR

Search and Replace: FO, BK, CS, CI, WW, AS, VY
Undo Utility: NA

PRINTER SUPPORT

NP:5, ES, EO, PS

FILE HANDLING

Document File Strategies: FD, DF, OTH, DS:200
PAGES
Document Savings: MS, EN, ER, EL, PL
DOS Facilities: DR, MU, CDK, ADK, SDR

File Import and Export: NIA, IBM, IWNG, IWS, JOTH, EIBM, EWNG, EWS, EOTH

SPECIAL FEATURES

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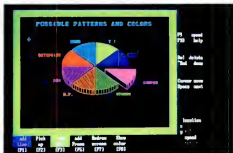
Just Write's search-and-replace function is one of its most powerful and well-thought-out features.

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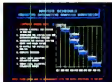


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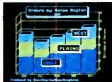
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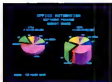


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tered at the new page breaks.

The insert mode works like most other programs, but in order to insert a line you must be in the insert mode. The same holds true for centering (which can be accomplished before or after entering text) and for the automatic indent feature. While underlining commands can be issued before or after entering the text, the bold-facing command operates only after text has been entered.

Most interesting is the fact that *Just Write* offers footnoting but no header or footer options. There is, however, a boilerplate system for entering frequently used phrases.

POWERFUL SEARCH AND REPLACE

Just Write's search-and-replace feature is powerful. You can use this function in both forward or backward directions, have the search be case-specific or nonspecific, and use global or nonglobal replacement.

However, I found that after selecting these options, I could not go back and edit them before issuing the command.

Unfortunately, the speller is not as

■ New format lines can be inserted anywhere in the document and can even be copied and moved.

powerful as the search-and-replace system. It's slow and will only spell-check a single word or the current page; the program has no option for manually replacing a misspelling. You must accept one of the words the dictionary offers (although you can add a word to the user dictionary).

Also, there is no way to quit in the middle of your spelling checks; you must wait until the end of the page.

File handling has its pluses and minuses. There is a quick-save feature that saves what you are working on and goes back to editing. There is a save-and-exit (to the main menu) system as well. However, you cannot save the document you are working on under a different name or make use of DOS 2.1 directories. You can, however, switch to a different drive or diskette from within the program. The biggest problem I could find was that *Just Write* will not import or export ASCII files. The people at *MultiMate* say that this problem will be corrected fairly soon.

As a personal word processor, *Just Write's* strong formatting capabilities and print buffering may be worth a serious look, unless you are disturbed by its rather stubborn page-oriented format.

—Dawn Gordon

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MINDREADER 2.0

Those who need a respite from yet another word processing package promising more of the same old thing can rejoice. *MindReader 2.0*, from Business-soft, is the first giant step toward the word processor of the future. While this program has some severe limitations, it breaks new ground in important areas and opens new vistas for what word processors might eventually become.

MindReader is so unique that Business-soft has secured patent protection for two of its features. The first (and biggest news-maker) is called WordComplete. When you enable this feature, *MindReader* makes a guess at the word you are trying to type. Typically the program offers four word choices in a window; you can choose from the list and insert the word of your choice with a single keystroke and then use the function keys to select the appropriate tense or suffix for the word.

Once you type in the first few letters, *MindReader's* Frequent Words technology offers a selection of phrases. The program's 130 phrases include items like *this is* and *from the*. You can customize the phrase selection with your own substitutions.

Using these technologies, what transpires on the screen is nothing short of astounding. The program guesses and completes words and phrases as you type. Better yet, combined with the program's AI learn mode, *MindReader* gets smarter by learning about the way you write. The program's 2,500-word dictionary is heuristic—it learns how you write as you go along. Each of the words in the dictionary has a counter, and it is increased by 1 each time you use the word. The word you use with the highest frequency is ultimately shown in the word-selection window highlighted in a different color. After a few sessions with *MindReader*, the program learns and indicates what it believes is your anticipated word.

As your selected words are inserted in the text, the program automatically adjusts for proper spacing. For example, if you want to insert the word *interest* in your sentence, you hit the appropriate number when that word appears in the word-com-

plete window. The cursor automatically shifts two positions to begin the next word. Change *interest* to *interesting* or *interested* by pressing the correct suffix ending key, and then the cursor jumps to the correct location. *MindReader* knows that the plural of *interest* is *interests* and that the plural of *ability* is *abilities*. It is an unfoolable grammarian, and if a word defies the rules of simple grammar, it is included in the master dictionary.

MindReader is modeled on certain controversial assumptions. The heuristic dictionary contains under 3,000 words. The author contends that only 130 English words account for 50 percent of all usage in typical business writing. These "frequent words" take a special place in the dictionary. By substituting your own frequent words for those supplied by the pro-

gram, you increase this percentage. The next 2,500 words in the dictionary account for another 45 percent of normal business writing.

In effect, *MindReader* facilitates the writing process for users with repetitive writing tasks that require limited vocabularies. The business-letter writer is the main beneficiary of this strategy.

HOW FAST DO YOU TYPE? All of *MindReader's* special functions can be turned on or off, and with all features on, the program is maximized to aid the tentative typist. The slow hunt-and-peck user can benefit from word and phrase completions because the search for keys is eliminated while the accuracy of the typing increases. A faster typist (40 words per minute) could use these features in a stand-



EXPANDED FACT FILE

MindReader 2.0

Business-soft Inc.
703 Goldens Ave., Suite M-4
Annapolis, MD 21401
(301) 263-1962

List Price: \$189



Requires: 256K RAM, DOS 2.0 or later, two disk drives.

CIRCLE 66 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Format: L, R, J, IN
Margins: LM, RM, AM, AO
Line Spacing: LS:1-2, LF, SB, SA, KP
Character Format: PW, IT, CB, AS, SC
Page Format: GL, GR, LP:52, PL:8.5, PW:11
Tabulation Format: TL, TC
Header/Footer: SL, OF, AN, RN, PA
Multiple Column: NC

EDITING SCREEN DISPLAYS

Nonexit Display: RO, CC, LN, DF, DK, DR, DA, TI
Text Display: SL:20, SC:80, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OD, DA, CA
Deletion Format: CD, WA, WB, LA
Character Features: AC
Cursor Movement: CM, NC, NL, NW, NSC, NFG, BSC, BD, SU, SD, CK
Block Editing Tools: HL, LN, MV, CP, DE, FC, FP, FPG, FT, AR, DF, TM
Search and Replace: FO, CS, CI, CP, WW, AS, WS, WR, VY
Undo Utility: UD

PRINTER SUPPORT

UP, PT, PS, AE

FILE HANDLING

Document File Strategy: FD, DF, ASC, DS:3500
BYTES

Document Saving: NB, EN, ER, DL
DOS Facilities: DR, MU, CDK, ADK, CDR, ADR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Spelling Checker: WD:2500, UG, US, SW, DB, ED, IC, MR, MI, AD, QK
Other: KM, CK, CS, SF, MM, GR, DV, TV, TM, MS, MT



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by mode, activating them only when it would expedite the process (for example when typing in the phrase "United States of America"). A very quick typist (over 70 wpm) is instructed to use the dictionary as an instant spelling checker and rely on the accessories to facilitate the job but to stay away from automatic word and phrase completion. In theory then, *MindReader* is flexible enough to accommodate the needs of a wide range of typing skills.

A host of other exciting features make *MindReader* the perfect candidate for the business correspondent. A glossary stored in RAM appears on the screen to offer a list of frequently used phrases. You can store entire paragraphs and retrieve them for insertion. The paragraphs can contain variables, so that you can insert the name of a company, the price of an item, or a specific date. The program provides for a single-keystroke mailing list in which the title, address, and salutation can be inserted into the document.

A spiffy selection of desktop accessories give this program its own built-in *Side-Kick* and then some. A telephone directory, a calendar, a calculator, and a 60-day diary are all available. They appear as pop-up windows and you can insert relevant information into your document from these accessories. The calculator has four-function arithmetic and two kinds of percent calculations. In addition, *MindReader* itself contains a number sub tab that is extremely useful for creating decimal-tabbed charts with summed totals.

Certain keyboard functions are designated "zomatic," meaning you can repeat the function merely by holding the key down. Search and replace, insert and delete line, mark line, and others are zomatic. The macro facility is very easy to use, recording your keystrokes as you go. An undo command provides recovery from accidental deletions. A spelling checker is activated with a single key-stroke, and it will check all words that are part of the *MindReader* dictionary. A phenomenal *InstaSpell* feature flags misspelled words immediately as you type them.

MindReader is like taking a trip to the local candy store. Around every corner lurks a treat. You can encrypt files and create ASCII format files with a single key-

stroke. You'll be entertained with sound effects, designerlike color palettes, and snapshots of video that are straight out of the arcade—all while you're processing your words. You can use the keyboard draw facility to create borders and boxes, and there is a split screen for viewing different parts of a document. There's even a Word Jumble game that introduces you to the strategy behind *WordComplete* and *AI* learning.

All of *MindReader*'s features are so easy to use, you practically never need to use the manual. The screen displays one row of ten commands at the top and two rows of ten commands at the bottom. Each command has a function key and either a Shift or Alt key associated with it. *MindReader* will automatically space to the beginning of the next sentence and capitalize the first word of the sentence as you type. Context-sensitive help is available as you enter your commands.

BLOCKED PROGRESS The only old-fashioned thing about *MindReader* is the word processor itself. What a swell technology like this is doing hanging around a basically mundane word processor is a mystery to me. *MultiMate* is *MindReader*'s word processing model—and therein lies the problem. The *MultiMate* drop-down insert is ever present and distracting in this program. Surely the best way to drive a nonprofessional typist to drink is to use a drop-down insert that inhibits the writing process.

MindReader's ability to block text is also pitiful. You can only block a passage by blocking a series of entire lines. If you want to begin blocking a portion of text in midline, you are sunk. Advanced print features require the insertion of print-formatting commands from the printer manual. You have no control over the placement of text on your page and are limited to one-line spacing for the entire document. Headers and footers are restricted, both in size and placement. The result? You get very high-tech bells and whistles with a rather low-tech word processor. Granted, most business correspondence does not require heavy formatting, but certainly more control is necessary than in *MindReader*.

MindReader can definitely increase the performance of slow, inexperienced typ-

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CIRCLE 308 ON READER SERVICE CARD

4P019

ists, but the productivity for fast typists is questionable. Typically, I type at 55 wpm, but using the *MindReader* word-completion facility to its full extent, I dropped to 20 wpm. I spent more time looking at pop-up windows and determining which tense or suffix to use than writing.

MindReader is not in the same league with corporate word processors. A corporate word processor requires more powerful capabilities. But even without the WordComplete and frequent word technology, *MindReader* is a good tool for creators of short but numerous business documents.

MindReader is an interesting blend of the old and the very new, is well worth using, and, more important, is worthy of attention. In its current incarnation, *MindReader* packs a great deal of interesting technology into a less-than-powerful word processor. A more-responsive word processor with this exciting new technology would be a very useful piece of software. I expect *MindReader* to get better and better in future releases.—Robin Raskin

letter of that command. Doing either will bring up a submenu, or once you have these committed to memory (it took me about 15 minutes), you can hit all the command letters in rapid-fire sequence and avoid the menus altogether. When you become a real expert, the program lets you set the time delay between hitting Esc and the appearance of the first menu to be as long as you want, so that you will never have to see the menus. I doubt that you will ever have to use the help screens, but they are complete and easy to follow.

You pay the price for ease of learning and use with features. A quick scan of the features table will give you an idea of just how limited *MyWrite* is as a word processing tool. Support of on-screen color is unconscionably lacking, and only one enhanced type style (underline or boldface) per document is permitted. Setting variable margins on either side is a kludgy process. You must go through your document paragraph by paragraph and format them

individually before printing, because the minute you insert or delete and are forced to rejustify, all margins revert to the last one that was specified. There is no way to automatically print out page numbers, and line spacing is global, so that you cannot have both single- and double-spaced text within the same document (unless, of course, you wish to do it manually). Also on the negative side are the lack of more cursor controls (word-right and word-left, but not end-of-line) and the way *MyWrite* performs screen updates—it scrolls quickly, but with an unpleasant blink.

MyWrite does put some surprisingly sophisticated features at your disposal. It quickly accomplishes simple search-and-replace tasks with a few elegant keystrokes. The cut-and-paste system automatically stores deleted text in a convenient and forgiving "paste" buffer until you either put it somewhere, cut something else, or clear your file out of memory. This buffer functions in lieu of an

MYWRITE 1.04

MyWrite 1.04 is an elegant, if unsophisticated, product for users with simple word processing needs. It allows you to put words easily on-screen, and ultimately on paper, without interfering in the writing process. It doesn't do much more than that, but for a product in its category and price range, that's good news.

MyWrite is incredibly easy to install and learn. The tutorial in the manual is easy to follow, but you probably won't need to bother with it; simply copy the single floppy disk, boot it up, and you're off. The program presents you with a blank screen with status messages for the word-wrap and insert-mode toggles and the percentage of available memory inscribed in the lower right-hand corner. You also get a message telling you to press the Question mark (?) for help. To access the main function menu, you hit Esc. You select menu options in one of two ways: Either use the Space bar to move the reverse-video cursor to the appropriate choice or type the first



EXPANDED FACT FILE

MyWrite 1.04

The Software Toolsworks
14478 Glorietta Dr.
Sherman Oaks, CA 91423
(818) 986-4883

List Price: \$49.95



Requires: 128K RAM, DOS 2.0 or later, one disk drive.

CIRCLE 659 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN
Margins: LM6, RM255
Character Formats: BO, UL, ASC
Page Formats: LIT, LLT, LLS, GR, LP24, HT, FB, PL:11, PW:5.5
Header/Footer: SL
Multiple Columns: CP:1

EDITING SCREEN DISPLAYS

Normal Displays: RO
Text Displays: SL24, SC:10, WD, FJ

TEXT ENTRY AND EDITING

Typing/Editing: IT, OD, DM, IM
Deletion Formats: CD
Cursor Movement: CM, CK, NC, NL, NW, NPG, BSC, SU, SD, SL, SR, JL
Block Editing Tools: HL, AL, MV, CP, DE, MR, HA

Search and Replace: FO, CI, WW, AS, VY
Undo Utility: NA

FILE HANDLING

Document File Strategy: FD, DF, AS
Document Saving: AB, DB, MS, EN, ER, DL, EL, PL
DOS Facilities: ADK

File Import and Export: IM, IAL, EAL

SPECIAL FEATURES
Other: KM, SF

MyWrite is an elegant, if unsophisticated, product for users with simple word processing needs. It allows you to put words easily on-screen, and ultimately on paper, without interfering in the writing process. It doesn't do much more than that, but for a product in its category and price range, that's good news.

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MyWrite is a good example of a basic personal word processor, as illustrated by its uncluttered but accessible screen format.

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Personal

undo command by allowing you to restore accidental deletions. Copying blocks between files is accomplished easily by cutting the block, performing a "file transfer" to bring up a new file or another file from disk, and pasting away. The program automatically sets the last two files between which you transferred text as defaults, so that if you are working with the same two files, this function acts as a rudimentary, but workable, windowing feature. Also, *MyWrite* features an easy-to-use keyboard macro facility that can store often-used phrases for recall at the touch of a function key.

Would I shell out \$49.95 for *MyWrite*? If I were not already spoiled by professional word processors and if my primary need was to work on short, straight-ASCII documents with a minimum of formatting requirements, I would. *MyWrite* is not suitable for any complex business applications, but for quick-and-dirty text

editing, you'd be hard pressed to find a better program at the price.

—Paul M. Stafford

PAPERBACK WRITER 1.0

Paperback Writer 1.0 is billed as a practical word processing program, and like a practical person, it gets the job done simply, without any extra frills. Its straightforward personality puts *Paperback Writer* squarely in the personal word processor product category.

Paperback Software International has targeted the program at novice users who still have an approach-avoidance reaction to computers, along with occasional users of word processors, frequent writers of short memos and letters, and those who



EXPANDED FACT FILE

Paperback Writer 1.0

Paperback Software International
2612 Eighth St.
Berkeley, CA 94710
(415) 644-8248

List Price \$39.95



Requires: 128K RAM, DOS 2.0 or later, one disk drive.

CIRCLE 668 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JN
Margins: LM, RM, RM:132
Line Spacing: LS:1-8
Character Formats: BD, UL, CB, ASC
Page Formats: LIT, LLB, GL, GR, LP:99
Tabulation Formats: TL
Header/Footer: SL, AN, PA
Multiple Columns: CP:0

EDITING SCREEN DISPLAYS

Nontext Display: RC, DF, DK
Text Display: SL:1R, SC:80, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ED, DM, IM
Deletion Formats: CD, WE, LA
Character Features: HH
Cursor Movement: CK, SD, NC, NL, NW, NSC, NPG, BSC, BD, SU, SD, SL, SR, CK
Block Editing Tools: HL, AB, MV, CP, DE, MR, HA
Search and Replace: FO, CS, AS, VY
Undo Utility: NA

PRINTER SUPPORT

NP:1, SP:0

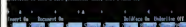
FILE HANDLING

Document File Strategy: LM, DF, OTH, DS:256 K
Document Saving: EN, ER, DL, EL, PL
DOS Facilities: DR, ADK, ADR
File Import and Export: IAL, EAL

Emphasis Highlight

Paperback Writer, version 1.0, is billed as "the practical word processing program," and like a practical person, it gets the job done simply, without any extra frills. This straightforward, personality program *Paperback Writer* squarely in the personal word processor product category. Paperback Software International has targeted the program toward the novice user who still has an approach-avoidance reaction to computers. The program's "word processor" name, the *Paperback Writer* file's high name and feature, and name the name a practical word processor at a practical price.

Paperback Writer doesn't presume any prior computer knowledge and designs to eliminate such barriers to using it as a word processor. And, what a name for it.



Paperback Writer's main user interface is through function keys, as shown by the menu at the bottom of the screen.

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want a practical word processor at a pragmatic price. The documentation presumes no prior computer or word processing knowledge and even discusses such basic questions as what a word processor does, what a menu is, and what kind of message you'll get if there's no disk in the drive.

Similarly, since a new or occasional PC user generally has an elementary hardware configuration, *Paperback Writer* works quite adequately with a single floppy disk drive. It also operates with virtually any printer, obviating the need for a printer installation procedure.

Paperback Writer's user interface has been pared down to only four major function key menus, which appear at the bottom of the screen. The main menu requires you to use the function keys alone, and you can access three other menus by first holding down the Ctrl, Shift, or Alt keys to change the menu display and then pressing the appropriate function key. If your input

is needed to complete a procedure, a question appears above the menu.

Paperback Writer divides most of its formatting features between the margin and justification menu and the print menu, the only two menus that remove you completely from edit mode. The print menu's formatting specifications, such as line spacing, top and bottom margins, and page numbers, appear only on the printed page, as does the forced page break.

STICKING TO THE BASICS *Paperback Writer's* features stick to the basics, limiting alternatives and flexibility in favor of ease of use. This tradeoff is most apparent in the text entry and editing features. You can see your margins and justification changes on-screen, but only after you remember to reformat the paragraph or the document. If you have indented the first line of each paragraph, you'll have to reformat each paragraph separately, since

the global reformatting function will run all the paragraphs together. And since there's no way to save your margin settings or justification choice, you'll have to reset them each time you start.

The program's insert mode and word wrap function are mutually exclusive, and so whenever you're typing at the end of a document, you'll need to turn Insert off to preserve automatic word wrap. Alternatively, when you want to insert text, you'll have to remember to turn Insert on, disabling word wrap and causing the added lines of text to extend beyond the right margin. When you're done inserting, you'll have to reformat the paragraph. Such toggling can become a real nuisance.

Paperback Writer's block editing tools have an easy-to-use function-key menu all to themselves. One of these function keys will change the typeface of a designated block to underline and/or boldface and then back to normal. The Delete Block and

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Recall function keys are handy for temporarily removing a block so that it won't be affected by the margin or search-and-replace changes that you make to the rest of the document. This feature is especially useful since most of *Paperback Writer's* editing features have a global effect.

The search-and-replace tools also have their own function-key menu that allows a global search and replace, or a single search and a single search and replace, both of which can be repeated. A prompt gives you the opportunity to okay or cancel each replacement. It's unfortunate that there's no provision for wildcard searches or replacements since the okay/cancel prompt would save a new user from changing more than was intended.

Paperback Writer will read ASCII files, although according to the manufacturer it wasn't intended to handle importing and exporting. You must be prepared to do some manipulation to remove the in-

coming hard carriage returns.

Paperback Writer's documentation is its signature—a paperback manual. This 100-page booklet makes getting started as unimposing as possible by using several typefaces and a generous sprinkling of graphic depictions.

Paperback Writer's mode of operation is to break everything down into simple steps and to double-check crucial steps with the user. If you're looking for this security and hand-holding or if you feel you need to be protected from yourself, *Paperback Writer* is worth considering.

The flip side of small steps, however, is that it takes several of them to equal a single stride. When you're sure of your skills, you won't be able to grow within *Paperback Writer* but will have to find a new word processor, say, *Paperback Software International's Executive Writer*, of which *Paperback Writer* is a subset.

—Stephanie Stallings

PC-TYPE 1.0

ButtonWare Inc.'s *PC-Type 1.0* could be called the "handyman's special" word processor. Although it does offer some neat features, such as the ability to edit another file and run DOS or even another program without exiting your file, *PC-Type* forces you to construct your own macros in order to perform some surprisingly basic word processing tasks, such as double-spacing and search and replace.

PC-Type easily imports and exports ASCII files. However, if you need to double-space your files, that may prove more difficult: *PC-Type* has no line-spacing function. It is necessary to design a macro (Press Alt-Y, Cursor down, Enter, Ctrl-Y, and then hit Ctrl-Y again to run the macro) to double-space the text. *PC-Type* offers two types of macros that each store up to 250 keystrokes, normal and recursive. The

their ideas into documents quickly and efficiently. *Composer™* takes off from there giving users extra power for long, complex documents.

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CIRCLE 476 ON READER SERVICE CARD





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EXPANDED FACT FILE

PC-Type 1.0

ButtonWare Inc.
P.O. Box 5736
Bellevue, WA 98006
(206) 454-0479
(206) 454-2629 (technical support at night)

List Price: \$59.95



Requires: 128K RAM, DOS 2.0 or later, one disk drive
CIRCLE 657 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JC, JN

Margins: AL, AO

Line Spacing: LS:1

Character Formats: AP, BO, IT, UL, CB, AS

Page Formats: LIT, LLB, GL, GR, HT, FB, PW:78

Tabulation Format: TL

Header/Footer: SL, UM, AN, RN, PA

EDITING SCREEN DISPLAYS

Nonexit Display: RC, CC, LN, DF, DK, DR

Text Display: SL:19, SC:78, WA, WO, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OD, IM

Deletion Formats: CO, LA, LE

Character Features: AC

Cursor Movement: CK, NC, NL, NW, BL, BSC,

BO, SU, SO, JC, JL

Block Editing Tools: HL, AB, WO, LN, SE, PH,

CE, BC, DO, MV, CP, DE, FP, MR, OF

Search and Replace: FO, BK, CI, WW, AS, VY

Undo Utility: KD, NA

PRINTER SUPPORT

EO

FILE HANDLING

Document File Strategy: FD, DF, ASC

Document Savings: NB, MS, EN, ER, EL

DOS Facilities: OR, CDK, AOK, CDR, ADR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Other: KM, CS, GR



PC-Type's shareware word processing program employs a combination of function keys and user-written macros.

normal runs through your macro once and stops. The recursive repeats until you reach the end of your file.

Printing the file is also tricky. You must carefully line up your printhead right at the crease of the fanfold paper because form feeds are not automatic. You can enter page breaks three ways. The user page option (Alt-P) allows you to insert page breaks on the line after the current position of the cursor; it also allows you to insert page numbering, with the option of starting the numbering at any number other than 1. The auto page option (Ctrl-P) will insert a page break every *NN* lines where you specify *NN*. If you want specific vertical margins, you must specify their values in the installation file, which also allows you to set default values for margins and set color, printer escape codes, and so forth—then access them when you print using the PrintP command.

Both PC-Type's search-and-delete and

search-and-replace capabilities require you to haul out your hammer and saw to make yourself a macro. For example, to search for and delete an entire line, I set up the macro by typing Alt-Y (to begin the macro), /word (to define the word I was looking for), F10 (to tell PC-Type to perform the operation on the command line), F5 (to delete the entire line), and Ctrl-Y (to end the macro). Once all that is finished, Ctrl-Y again activates the macro. Although the search (/string) commands are not case sensitive (which forces you to replace a word manually to preserve case), you can search forward or backward.

Paragraph indents, right and left margins, and tabs can be set either permanently through the installation menu or temporarily within the file. The procedure involves hitting F8, then manually placing tab (T), indent (I), right (R), and left (L) markers. Tab settings only allow for flush left, ragged-right tab columns. If you save



the file, then recall it, the saved text will retain temporary margin and tab settings, but the margins of new text you add will revert to the default settings. Thus, temporary settings are most useful for sections of text that should have different margins from the main body of the text.

PC-Type will not automatically reformat text after you have made editing changes or changed margins. You must use the Ctrl-R command for that. For formatting purposes, a paragraph is defined as a line of text with a blank line above. Since I had double-spaced the text in the first assignment, I could not reformat paragraphs. The moral: Don't double-space a *PC-Type* document until you're ready to print your final draft. If you want part of your text to be double-spaced and part single-spaced, you'll have to do one or the other manually.

EASY BLOCK CONTROLS *PC-Type's* block controls all work easily and well. You can mark either whole line or partial line blocks and perform most typical block functions, such as move, copy, and delete. You can also justify marked blocks to be either flush left, flush left and right, or centered. You can change marked text to upper- or lowercase. In addition to moving blocks within files, you can save a block of text to its own file, then call it back to any place in another file using the Get commands.

Headers and footers are easily added through the install menu. The problem is that you must call up the install program to change them every time you want them in a different file. To activate headers and footers, you must use the PrintP command when you type out your file.

An interesting and useful feature is *PC-Type's* ability to call up and use DOS, another file, or even another program without exiting the file you're in. Just hit the Esc key to go to the command line and type DOS plus your drive and filename.

Learning *PC-Type* isn't especially difficult if you heed the vendor's advice and go through the entire 26-chapter tutorial. The tutorial explains the entire program using text and exercises that run the actual program. The manual is clearly meant to be used only for reference after you've mastered the tutorial; it is poorly designed,

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with chapter headings that only a programmer could love.

PC-Type is an inexpensive package that has a few powerful features, but these features come at the expense of the basics. While the product does have potential, you would do better to wait until ButtonWare revises the manual and adds more of the basic features that are currently do-it-yourself.—Cheryl Goldberg

PERSONAL QWERTY WORD PROCESSOR 3H

Personal QWERTY Word Processor 3H is a cut-down version of Professional QWERTY. Although the program lacks some features of its sibling, it shares such qualities as ease of learning

and use, and speed. It even has a sophisticated mail-merge feature that is unusual for programs in the personal category.

Certainly the most striking feature of this program is the basic design, which it shares with Professional QWERTY. There is no real cursor in the QWERTY approach to word processing—at least not in the sense of being able to move the cursor anywhere on the screen. When editing, the program shows a ruler line and a position indicator at the bottom of the screen. The position indicator functions much like a cursor, but it will only let you enter or edit text in the line just above it.

The effect is like using a typewriter and rolling paper up and down. This, of course, is exactly the point—to provide a familiar context for using the computer. Unfortunately, the typewriter emulation may be too close in some respects.

For me, at least, keeping track of the flow of ideas by continually scrolling up



EXPANDED FACT FILE

Personal QWERTY Word Processor 3H

HFX Software Inc.
Old Danbury Rd.
Danbury, NH 03230
(603) 259-0059

List Price: \$99



Requires: 128K RAM, DOS 2.0 or later, one disk drive.

CIRCLE 606 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph formats: JL, JN
Margins: LML, RML, SL, AL, AO
Line Spacing: LSO-9, WC, OC
Character Formats: BO, IT, UL, ST, CB, AS
Page Formats: GL, GR, HL, HR, FL, FR, PL, PS, 999,
PW:30, MP

Tabulation Format: TL
Header/Footer: SL, UM, OF, UP, AN, RN, PA
Multiple Columns: NC, UC, GW

EDITING SCREEN DISPLAYS
Numeric Display: RC, CC, DR
Text Display: SL, SO, SC, 79, WA

TEXT ENTRY AND EDITING
Typing & Editing: FC, IT, ED, BA
Deletion Formats: CD, WE, LE
Character Formats: JH, SH, HB
Cursor Movement: CM, CK, NC, NL, NW, SU, SD, CK
Block Editing Tools: UM, AB, CP, DE, AR, DP
Search and Replace: FO, BK, CI, AS, FS, FR

PRINTER SUPPORT
PT, CH, PS

FILE HANDLING
Document File Strategy: FD, DF, CT, AS, CS,
DS:4800 BYTES

Document Saving: NB, EN, ER, EA, EL
DOS Facilities: DR, MU, CDK, ADK, SDR
File Import and Export: IAP, EAL

SPECIAL FEATURES
Other: MM



Personal QWERTY, like its counterparts Professional QWERTY, includes a nice complement of sophisticated editing features.



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and down is cumbersome. It's not a big problem, but it is still significant enough to make this program much better suited for typing than for creative writing.

Ironically, *Personal QWERTY* is more difficult to learn than *Professional QWERTY*, but only because of the tutorial, which is practically nonexistent. The *Personal QWERTY* tutorial is being rewritten, and the new tutorial should be available by the time you read this.

As with the professional version of this program, *Personal QWERTY* makes excellent use of color. The program has ten built-in color combinations, any of which can be called up from the main menu at the touch of a function key.

SOPHISTICATED FEATURES Like the professional version, *Personal QWERTY* includes such sophisticated features as automatic indent and outdent of paragraphs, tabs and margins controlled by ruler lines entered as text, and even a mail-merge feature. *QWERTY*'s mail merge can use comma-delimited data files produced by a double handful of database programs. Alternatively, it can use *QWERTY*'s own data-file format, which is easier to create and maintain as a text file.

One of the most important differences between *Personal QWERTY* and *Professional QWERTY* is the printer support in the two programs. *Professional QWERTY* is available with full printer support for any one of 15 printers. *Personal QWERTY* comes with a universal printer driver that will work with just about any printer, but cannot take advantage of special features.

Another difference is that *Personal QWERTY* offers the option of using the PC's cursor movement keys for moving through text. *Professional QWERTY* reserves these keys for features that don't exist on *Personal QWERTY*. Both include a set of movement commands on the function keys, and these are easy enough to get used to, but for the occasional user, cursor keys are certainly the more obvious.

One last difference worth mentioning is that unlike *Professional QWERTY*, *Personal QWERTY* can work on the Data General One—the assumption being that a secretary won't need this feature, but the secretary's boss (who would only need a simpler word processor) might.

By most measures *Personal QWERTY* is one of the more capable personal word processors I've seen. Given all its features and its \$100 price, it may even qualify as a bargain for occasional users at home,

school, or the office. For anything short of serious creative writing and editing done directly on the computer, *Personal QWERTY* is worth a close look.

—M. David Stone



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color screen is configured with low-intensity white on blue.

The opening menu is the core of the program. On it are numbered selections for typing/editing, file handling, printing, page formatting, and exiting to DOS.

The text-entry screen comprises a box in which text is entered (22 lines can fit here) and a ruler and status line below. The ruler line is numbered by the inch and includes margin, tab, decimal tab, and indent markings. The status line features the name of the document, how much memory is in use, and the line and page numbers.

With the exception of double-spaced text, underlining, and full justification, PFS:WRITE enables you to see what the printed page will look like on the screen. It even shows the correct location of headers, footers, and page breaks.



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CIRCLE 655 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JM
Margins: LM:1, RM:250, AI
Line Spacing: LS:1-2
Character Formats: BO, IT, UL, SP, SB, CB, ASC
Page Formats: L:1, L:2, GL, GR, LP:999, HT, HL, HR, FB, FL, FR, PL:999, PW:250
Tabulation Format: TL, TC
Header/Footer: SL, UM, OF, AN, RN, PA, PO
Multiple Columns: CP:0

EDITING SCREEN DISPLAYS

Nontext Displays: RC, LN, PN, DF
Text Displays: SL:22, SC:80, WA

TEXT ENTRY AND EDITING

Typing/Editing: IT, OD, CA
Deletion Formats: CD, WA, LA
Character Features: RH
Cursor Movement: CM, NC, NL, NW, NSC, BL, BD, SU, SD, SL, SR, CK
Block Editing Tools: HL, AB, WD, LN, CE, MV, CP, DE, CF, AR, HA
Search and Replace: PO, CI, CP, WW, AS, WS, WR, VY
Undo Utility: NA

PRINTER SUPPORT

NP:73, UP, PT, CH, PS, OF, AE

FILE HANDLING

Document File Strategy: FD, DF, OF, DS:6400
BYTES

Document Saving: NB, MS, EN, ER, EL, PL
DOS Facilities: DR, CDK, ADK, CDR, ADR
File Import and Export: IM, IAP, KOTH, EAL, EOTH

SPECIAL FEATURES

Spelling Checker: WD:75000, UG, UD, SW, ED, IC, BG, MR, IM, AD, QK
Other: MM, MMD, GR

I create text and tables on a screen, in reality. The screen is a hard drive and I select the option of saving, editing, printing, page formatting, and exiting to DOS.

The opening menu is the core of the program. On it are numbered selections for typing/editing, file handling, printing, page formatting, and exiting to DOS. The text-entry screen comprises a box in which text is entered (22 lines can fit here) and a ruler and status line below. The ruler line is numbered by the inch and includes margin, tab, decimal tab, and indent markings. The status line features the name of the document, how much memory is in use, the line and page numbers. It even shows the correct location of headers, footers, and page breaks.

I am happy to find that PFS:WRITE enables the user to see what the printed page will look like on the screen. It even shows the correct location of headers, footers, and page breaks.

PFS:WRITE's editing screen features a typewriter-like ruler line and reminders of which keys to press for help and the main menu.



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Text editing is a breeze. Reformatting is automatic and fast, but although I could move around the document quickly (by character, word, line, screen, and beginning/end of document), I couldn't move page by page. *PFS:WRITE* allows you to scroll horizontally out to column 250 for those extra-wide reports.

The program will produce boldface, italic, underlining, centering, flush-right positioning, and super- and subscripts, but only as an afterthought. You have to block the text, then select the formatting you desire. The most annoying aspect of *PFS:WRITE* is that it won't let you change margins or spacing within a document.

Block moves such as copy, move, and delete are available, as is a wonderful indent feature that uses a toggle instead of a hard return.

SOME MISGIVINGS I did have misgivings about the header and footer arrangement. Although easy to use, the system requires that page numbering be in the footer. And although you can specify a cover page, which turns off the headers, footers, and numbering for the first page, the numbering will then start as page 1 on the next page—bad news for business letter writers using more than a single-page document.

The search-and-replace system in *PFS:WRITE* is sophisticated for a personal word processor. Only forward search and replace is possible, but wildcards and global and manual commands are available. Upper- and lowercase is preserved when replacing a word or string, and there is an easy way to get a total word count with the search-and-replace function.

Unlike previous versions of *PFS:WRITE*, this version includes a spelling checker. This spelling system suggests replacements and replaces incorrect spelling in the text. The spell checker also checks for double words, incorrect capitalizations, and incorrectly punctuated numbers, as well as ordinal numbers in the wrong format. You can add up to 5,000 words to the user dictionary (it's memory dependent) and even combine *PFS:PROOF* (Software Publishing Corp.'s outboard spell checker) with the *PFS:WRITE* dictionary.

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printer is not specified, there's an option for keying in certain printer functions using the correct escape codes. There are provisions for inserting printer commands in the print menu (or in the document), printing envelopes from the document itself, right justification, specifying a range of pages and copies, and printing single sheets.

Other niceties include: a quick-save feature that saves you from going back to the main menu to save the document you're working on, ASCII input and export, and merging with other PFS series files; for example, importing graphs produced by PFS:GRAPH, using PFS:FILE for mail merges, or inserting PFS:REPORT and PLAN output into documents.

The documentation is very complete but a bit disorganized. For example, the chapters on file handling, editing, and printing are in a confusing sequence.

Overall, I was impressed by PFS:WRITE. It's a good basic program for those who don't need a professional system but who do need an easy program on which to get up to speed. —Dawn Gordon

PRONTO! 1.0

When you first see *Pronto! 1.0*, you immediately ask, "Is something missing?" The disk-size package comes with virtually no written documentation, but 96 pages of documentation plus a full tutorial are contained on two program disks. *Pronto!* may be small, but it's an easy-to-use full-fledged word processor.

Pronto! does come with a single sheet of written instructions, enough to get you up and running. The on-screen tutorial and



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Pronto! 1.0

Electronic Software Publishing
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Novato, CA 94947
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Requires: 256K RAM, DOS 2.0 or later, two disk drives.

CIRCLE 604 ON READER SERVICE CARD

List Price: \$69.95



FORMATTING FEATURES FOR FINAL TEXT

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Margins: LM, RM, CM, AO
Line Spacing: KN, WC
Character Formats: BO, UL, SP, SB, CB, ASC, CT
Page Formats: LIT, LLB, GL, GR, LP:100, HT, HL, HR, FB, PL, FR, MP
Tabulation Format: TL
Header/Footer: SL, UM, OF, UP, AN, RN, PA

EDITING SCREEN DISPLAYS

Number Display: RC, CC, LN, DF, DK, DR, TI
Text Display: SL:19, SC:78, WA, FI

TEXT ENTRY AND EDITING

Typing/Editing: FC, OD, DA
Deletion Formats: CD, WA, WE, LA, LE, DA
Cursor Movement: CM, CK, NC, NL, NSC, NPG, BL, BSC, BPG, BD, SL, SR
Block Editing Tools: BE, AB, MV, CP, DE, AR, AW

Search and Replace: FO, CS, WW, AS
Undo Utility: UD, RD

PRINTER SUPPORT

UP, PT, PS

FILE HANDLING

Document File Strategy: FD, DF, ASC, DS-6400
KBYTE

Document Saving: NB, MS, EN, EL
DOS Facilities: DR, MJ, CDK, ADK, CDR, ADR
File Import and Export: IM, IAL, EAP

SPECIAL FEATURES

Others: CS, SF, DV



Although *Pronto!* uses menus and function keys for most features, it also employs WordStar-like dot commands for text formatting.

documentation tell you how to set up the control codes for your printer—the vendor claims you can use *Pronto!* with any printer if you install the proper codes according to your printer's documentation.

The on-line documentation/help screens are very flexible and easy to use. By pressing F1, you access a help menu that gives you a choice of two indexes of commands and program functions. The command index is an alphabetical listing of commands; the how-to index is an alphabetical listing of topics. Both supply the page number of the explanation in the documentation, and you can use the Goto command to go there. You can also page forward or backward through the documentation. And if you have trouble using a command while editing your document, just hit F1 and *Pronto!* will take you directly to an explanation of that command.

VARIETY OF COMMANDS The same variety and flexibility that is in the on-line help is apparent in *Pronto!*'s command structure. *Pronto!* combines 1-2-3's "point-to, press Enter, or type the first letter of the command" structure with *WordStar*-like dot, Alt key combination, and function key commands.

Function keys control the help, save, and print modes. They also take you to the main command line, control windowing (you can open up to four windows at once), line centering, and deletion. The command menu at the bottom of the screen handles basic file and screen operations such as saving and getting files, clearing the screen, and some text-formatting commands, such as setting tabs and line length and search and replace. *Pronto!* helps you use these commands by displaying a short explanation of each command you select.

The Alt key combination commands are primarily in charge of block functions. To use them you mark the beginning and the end of a block and then use various Alt key combination commands to copy, move, and delete text. These commands also control embedded printer codes for underlining and boldfacing and allow you to begin a new page, jump to another page, or undo the previous edit. The dot commands give *Pronto!* its flexibility. Dot commands control formatting within the body of your text and can override any pre-

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viously set defaults. For example, using dot commands, you can change margins and line spacing on a paragraph-by-paragraph or even a line-by-line basis; begin headers and footers at any point in your document; allow pagination to begin at any point and on any page number; put headers and footers on alternate pages; set top and bottom margins; center text; and stop printing between pages.

Because the dot commands are actually embedded in the text, a document with lots of formatting can look messy. Fortunately, *Pronto!* allows you to preview what your fully formatted document will look like before printing. This is particularly useful when you're working with headers and footers, which require careful placement, especially if you try something fancy.

The file-directory structure is a unique feature of this package. The "name mask" filing system groups related files by their

filename extensions. You can either call up a directory of all files using *, or specify which extension you want.

As with all programs, *Pronto!* has its share of annoying quirks. The most annoying is the method required for inserting text. The program uses the overstrike mode as the default. In order to insert new text, you must hit the Ins key, which moves the existing text down to the next line. You then make your changes and hit Ins again to reformat the paragraph. However, if you're in the insert mode and hit Del, you're out of the insert mode and must start over. And to make matters worse, you can't delete with the Backspace key.

Other minor annoyances with *Pronto!* include the fact that, while the program has a dot command for globally inserting hanging indents, it has no such command for regular indents. Instead you have to hit



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TEXTRA 3.1A

Ann Arbor Software
407 N. Main
Ann Arbor, MI 48104
(313) 769-9088

List Price: \$24.95



Requires: 256K RAM, DOS 1.0 or later, one disk drive.
CIRCLE 653 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: BL, JR, JC, JN
Margins: LM 1, RM 240, AL, AO
Line Spacing: LS 1-3
Character Formats: BO, IT, UL, SP, SB, ASC
Page Formats: LIT, LLB, GL, GR, LP 100, HL, HR, FL, FR, MP
Tabulation Format: TL
Header/Footer: SL, AN, RN, PA
EDITING SCREEN DISPLAYS
Nontext Display: RD, CC, LN, PN
Text Display: SL 25, SC 80, WA, WO, FI
TEXT ENTRY AND EDITING
Typing/Editing: IT, OD, CA, IM
Deletion Formats: CD, WA, LA, LE, PGE
Cursor Movements: CC, NC, NL, NW, NSC, NPG, BSC, BPG, BD, SL, SR, JL, JP, JM
Block Editing Tools: HL, AL, MV, CP, DE, AR, HA, DF
Search and Replace: FO, BK, CS, CI, CP, WW, AS, VY
Undo Utility: UD
PRINTER SUPPORT
NP 0, PT, PS, AE
FILE HANDLING
Document File Structure: FD, OF, CF, ASC, OS 40 PAGES

Document Saving: AB, DB, MS, AT, AD, EN, ER, EL, IN
DOS Facilities: OR, MU, CDR, AOK, CDR, ADR
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES
Other: CS, OV

The program comes in 2 parts: the first, or standard, part, covers the needs associated with normal finding and print presentation operations. The 2nd part covers special features involving searching. Searching operations can be performed in 2 levels, gross screening and gross screening with fine screening operations. In keeping with the philosophy of pricing on a volume and quantity basis, the fees for finding and standard operations are based on the number and type of format on the reference family groups.

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Service Prices for Each Two Lines

Standard Operations	Small	Medium	Large
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Other search: 10.00, 25.00, 50.00, 75.00, 100.00, 125.00, 150.00, 175.00, 200.00, 225.00, 250.00, 275.00, 300.00, 325.00, 350.00, 375.00, 400.00, 425.00, 450.00, 475.00, 500.00, 525.00, 550.00, 575.00, 600.00, 625.00, 650.00, 675.00, 700.00, 725.00, 750.00, 775.00, 800.00, 825.00, 850.00, 875.00, 900.00, 925.00, 950.00, 975.00, 1000.00

TEXTRA adjusts its function fee menu according to which function is being used: here it is in the middle of a search and replace.



Ins and manually key in the spaces for each indent. And finally, while you are able to do a case-sensitive search and replace for both text and certain commands, such as dot commands, you can not do a search for wildcards, carriage returns, or hard spaces.

But, all in all, *Pronto!* gives you a full range of features for a very reasonable price.—Cheryl Goldberg

TEXTRA 3.1A

For those who don't already own a copy of *TEXTRA*, the only way to get the new *TEXTRA 3.1A* is to buy it along with the previous Version 3.1. This new version of *TEXTRA* is an upgrade disk, available to owners of 3.1 for \$14.95. (*TEXTRA 3.1* alone still sells for \$9.95.) It adds at least 50 options and features to an already quite decent personal word processor. Although it may seem a little funny ending up with two disks and two manuals, it's well worth the small price.

TEXTRA is not a high-powered word processor, but once you've seen this \$25 gem you will wonder why other word processors cost so much more. If you compare features, you'll find *TEXTRA* no less sophisticated than the other programs in its class—just less expensive.

To begin with, *TEXTRA* is even faster than speedy *XyWrite* in loading and saving files and in cursor movement. You can load a 10K-byte file in 2 seconds and page down to the end of it as quickly as your finger can pound the PgDn key. Screen rewrite time is best described as "the wink of an eye." *TEXTRA*'s Goto Line, Goto Page, and Search-and-Replace functions work fast and easily.

Of course, man does not process by features and speed alone. Program design and user interface are of at least equal importance. Here again, *TEXTRA* shines brightly. It's a menu-driven program, and the prompts are easy to follow. Even if they weren't, the on-line help interprets everything clearly.

The program's opening menu screen is ingeniously designed to give you maxi-

mum flexibility, presenting a numbered list of files on the active disk drive. On boot-up, *TEXTRA* assumes you want to retrieve a file from that list and allows you to do this by typing the file's number or name

and pressing Enter. Extra function keys on this menu allow you to exit, change the default drive or directory, print a document, peek at a document (you see the first page on screen without actually calling the doc-

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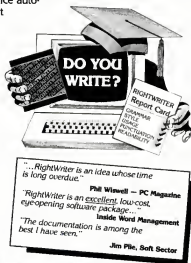
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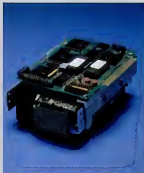
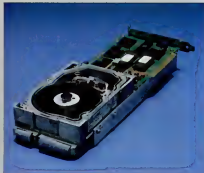
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Personal

ument into memory), or create a new document. This highly useful menu also displays the date and time, active drive and directory, and the name of the last document edited.

The opening menu has another option you don't see often, called "Information on getting started with TEXTRA." If you choose this, the program lets you select

■ TEXTRA is not a high-powered word processor, but once you've seen this \$25 gem you will wonder why other word processors cost so much more.

one of three skill levels, each containing enough information to get anyone started. At the end of each of these sections is a series of "film-on-disk" tutorials that illustrate word processing principles and many of TEXTRA's features through animated graphics that run up to 4 minutes. Beginners will love it.

TEXTRA's writing/editing screen is refreshingly clean and open, yielding 24 lines of text display. Even the single line at the bottom of the screen used for the function key prompts can be suppressed to give you a completely blank text area measuring 25 lines by 80 columns. There are two function key menus, toggled with the F1 function key. The main one is for inserting blank lines, paragraph reformatting, underlining and boldfacing, and deleting text by character, word, or line. The secondary menu contains commands for search and replace, block copying and moving, and merging; it also lets you access three full-screen menus called "print," "save," and "switch." The print and save menus each offer a wealth of single-key options, but the switch menu is the most interesting.

The switch menu has several functions. First, it presents a list of 12 "switches" and their on/off status, which can be



changed by typing their numbers. You can toggle automatic indent, word-wrap, a right-margin bell, a high-intensity green screen, blank space symbols, error beeps, the print-screen function, paragraph reformatting, DOS 2.0 or later (enabling users of 1.x to alter certain features), secondary margin settings, and automatic backup. Second, you can customize the main-level menu, set tabs, and set the left, right, and first-line margins.

TEXTRA uses the on/off switch metaphor extensively to enable and disable features for a particular operation. For example, when you select the search-and-replace function, the function key prompt line changes to give you toggle switches for performing the search and replace globally or locally, verified or not, case sensitive or insensitive, and backward or forward in any combination. It's an attractive feature of **TEXTRA**'s design.

On **TEXTRA**'s program disk you'll find a file called **TXCUSTOM.EXE**, which lets you set a variety of defaults. For example, you can preset the search-and-replace switches, the default drive and directory, printer settings, and even such details as including file size in the directory listings or highlighting all files with the extension of .DOC in yellow.

It sounds like you can't go wrong with **TEXTRA**, but of course you can. **TEXTRA** uses global left- and right-margin settings and has no handy indent-text feature, so you can't get too fancy in that department. It makes up for this somewhat with a secondary margin setting, allowing you to toggle between two sets of margin settings at will. Its other big weakness is printer drivers, or the lack thereof. **TEXTRA** is set up to work with "all" printers, so there are no drivers on the disk, which means it won't take advantage of any special features of your printer unless you embed the printer control codes in the text.

Of course, **TEXTRA** does not have a spelling checker, hyphenation, automatic indexing, mail merge, hard spaces, and other power features. But what it does have works extremely well to produce documents up to about 40 pages quickly and with minimum effort on your part. Considering the price per feature, there's not much to compare with **TEXTRA**.

—Phil Wiswell

N

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WORDPERFECT JR 4.0

How much word processing power can you get for just \$89? Well, before I reviewed *WordPerfect jr 4.0*, my answer would have been "not much." Designed to compete head-to-head with inexpensive word processors such as *PFS:WRITE* and *Just Write*, *WordPerfect jr* comes out very well.

Installing the non-copy-protected *WordPerfect jr* program is easy with a simple "copy *.*". It can be installed on a single or dual drive or a hard disk system, and options for setting up custom colors are included in the loading sequence.

WordPerfect jr relies on the function keys in conjunction with the Ctrl, Alt, and Shift keys for its command structure. Two keyboard templates (one for the PCjr, and one for the PC) are included.

The text screen is uncluttered, with the page, line, and column numbers displayed on a status line on the 25th row. A space-remaining indicator on the status line indicates how much document space is left (you start with 65K bytes).

The text appearance is WYSIWYG, except for headers, footers, and right justification. All formatting codes are hidden from view, and a tap on the Reveal-codes key displays them for editing.

Cursor control is quick and efficient. You can move by line, column, word, screen, page, and beginning or end of the document, and you can scroll out to column 250. Features such as bold, underline, center, flush right, right justification, and autoindentation can be accomplished either before or after text has been entered. Blocking is handled well. You can cut or copy by sentence, paragraph, word, and beginning or end of text, and you can even



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Tabulation Format: TL, TD
Header/Footer: SL, UM, OF, AN, PA, THF

EDITING SCREEN DISPLAYS

Nontext Display: CC, LN, PN
Text Display: SL, 24, SC, 80, WA

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, ID, CA
Deletion Features: CD, WA, LA, PGA
Character Features: HB
Cursor Movement: CM, CK, NC, NL, NW, NSC,
NIG, ISC, RD, SU, SD, SL, SR
Block Editing Tools: HL, AB, CH, WD, LN, SE,
PH, CE, BC, MV, CP, DE, FC, AR, HA, DF
Search and Replace: FO, CI, WW, AS, FS

PRINTER SUPPORT

NP, O, UP, SF, O, ES, EO, QU

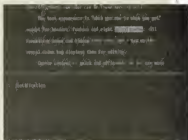
FILE HANDLING

Document File Strategy: FD, DF, OTH, DS 65000
KBytes
Document Savings: NB, MS, EN, ER, EL

DOS Facilities: OR, MU, CDR, ADR, CDR, ADR
File Import and Export: IAP, IOTH, EAL, EOTH

SPECIAL FEATURES

Spelling Checker: WD, 50000, UG, UD, SW, ED,
TC, BG, MR, IM, AD, QK
Others: CS



WordPerfect jr's spelling checker can be used to check a single word or your entire document.



use the block function to highlight text to be printed or saved to a different file name.

WordPerfect jr's formatting capabilities are surprisingly strong for a personal word processor. Formatting margins, page length, the top margin, line spacing, and tabs can be set anywhere in the document. Unfortunately, commands for each of the formatting options are spread all over the function keys instead of being linked to a single key.

Headers and footers are single line only, but you can place them anywhere on a line by using tabs, centering, and flush right commands. Auto page numbering and headers and footers can fortunately be turned off for the first document page. I was astonished to discover that **WordPerfect jr** has a search facility but no replace! Such a well-engineered program should not have blatant omissions like that. The search system will locate text and formatting codes, and the last search string entered is always remembered for future use.

GREAT SPELLER **WordPerfect jr's** speller is excellent. You can check a single word during text entry or the entire document, and after the spell check is finished, a total word count is displayed. The 50,000-word speller checks for double words, allows you to edit a misspelling, skip it for the rest of the spell check, add it to the user dictionary, or look up the correct spelling phonetically. The new word is automatically inserted in its correct case.

Printing includes options such as printing the page the cursor is on or the entire document. Print buffering and queuing are supported and handled for you automatically. Page ranges and the number of copies cannot be specified. Printer support is marginal at best. A printer setup program enables you to enter the escape codes for bold and underline and the sheet feeder for your printer, but no other support is available. The program has a printer character table for foreign-language support.

File handling with **WordPerfect jr** is a breeze. By pressing the key for "list files," you get a directory complete with size, date, and time of the current drive or directory. This directory has a highlighted cursor, and by entering the numbers 1 through 4, you can retrieve, delete, rename, or print any file from this menu.

Switching from directory to directory or to a different disk is another convenience. Other interesting file-handling features include the ability to name and rename a document whenever you like without leaving the editing screen. The program supports ASCII importing and exporting.

The documentation is very clear but not very complete. It does not discuss print queuing and buffering or explain page numbering completely. But the on-line help system is flexible—all you have to do is push the Help key and then the command key with which you need help.

WordPerfect jr is a winner, although the program's powerful features are offset by surprising omissions. But for the most part, this word processor shines when it comes to ease of use and text formatting—especially for almost half the price of the nearest competition.—Dawn Gordon

WORDVISION

Wordvision by Bruce & James offers a unique and very visual tool for word processing. It relies on bright primary colors and cute "card deck" symbols to guide you through the menu selections. Green, red, yellow, and blue clubs, hearts, diamonds, and spades replace those threatening-looking PC function keys. The manual and screen prompts use terminology like "changing form" instead of the more conventional "formatting commands," "going somewhere" instead of the more traditional "cursor movement commands," and "previous" and "next" as more human ways to say "page up" and "page down." Once you've attuned yourself to this Alice-in-Wonderland approach to software, you'll find **Wordvision** packs a lot of features in a simple-to-use, low-priced program.

According to Jim Edlin, president, program developer, and reigning guru of the **Wordvision** cult, the program works because "you never have to deal with more than five choices at a time." The five choices (selected by choosing from colorful graphics symbols) are always displayed on the bottom of the screen. "The colored symbols give the user right-brained cues

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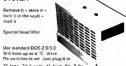
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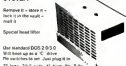
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CIRCLE 385 ON READER SERVICE CARD



that are easier to respond to than the traditional function keys," says Edlin.

The *Wordvision* experience begins with a little arts-and-crafts exercise. You peel off and stick on 35 keyboard labels. But no matter how dual-brained you are, it's hard to search for the small F2 written underneath the big red club. And if you use other programs that don't rely on hearts and clubs, these stick-ons will prove to be an irritating distraction.

Bruce & James offer an optional plastic template, or you can opt to use the program without symbols and configure it to accept function key commands. But to get the full flavor of this program you'll want a color monitor (a graphics monitor is not required since the hearts and clubs symbols are part of the standard IBM character set).

IDIOSYNCRATIC FORMAT *Wordvision's* highly original, rather psychedelic format is a mixed bag for users. Generally the program is easy to use, but it is besieged with idiosyncrasies that frustrate the creative writing process. A series of control panels permit you to fine-tune the program in order to suit your personal preferences and hardware configuration. For example, the main control panel lets you specify whether or not to store files in *Wordvision* or ASCII format, how you want your margins set up, and how you want to create backups. Keyboard and screen control panels let you customize your display and text entry.

The main menu screen displays a file cabinet. Filenames can be descriptive and are not confined to terse DOS code names. *Wordvision* instead names its files with a bizarre "GENERAL. ##" format for use with DOS. Unfortunately, this means that *Wordvision* users can't use DOS to create, copy, or delete files.

Wordvision uses terms like *scroll* to mean your entire document. Consequently, you do things like Copy to Scroll and Erase Scroll. (If you use other applications programs that use the word *scroll* in its more traditional sense, you'll have to whack your head a few times to change gears.) The traditional PC Del key is *Wordvision's* transposition key for upper- and lowercase letters. The results of this key's reassignment are pretty startling to the regular PC user.

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The advertisement features a large, detailed illustration of the Primavera Project Planner software box. The box is labeled "PRIMAVERA PROJECT PLANNER" and "Project Management and Control Software". To the left of the box, the text "PRIMAVERA PROJECT PLANNER" and "Project Management and Control Software" is repeated vertically. Below the box, there is a detailed illustration of a project management scene. It shows several people working at desks with computers, a large airplane in flight, and a construction site with cranes and buildings. The illustration is signed "PRIMAVERA SYSTEMS, INC." at the bottom left. At the bottom of the advertisement, the company name "PRIMAVERA SYSTEMS, INC." is printed, followed by the address "Suite 925 • Two Bala Plaza Bala Cynwyd, PA 19004 • (215) 667-8600 • Telex 910 997 0484".

CIRCLE 167 ON READER SERVICE CARD

Other functions make more sense. An indicator bar across the top of your display screen constantly shows the cursor's (*Wordvision* calls it a pointer) relative position in the document. Anytime you complete a function you press a bright red "Stop" key (the Esc key). An Undo key lets you easily restore any accidentally deleted text.

Many of the program's limitations are meant to make it easy to use. For example, the page appearance screen actually depicts a sheet of paper and indicates your selected text area.

Blocks of text are referred to by *Wordvision* as excerpts. You may mark as many excerpts as you please and then you can move, copy, or erase them by selecting the excerpt you wish to work on. Your excerpt selection appears in a specially created window. If you do a lot of reorganization when you are writing, the ability to simultaneously block multiple passages and manipulate them individually is definitely helpful.

FLEXIBLE BELLS AND WHISTLES

Flexibility is added by using an Adjust command to change the justification for a section of text within a document. *Wordvision* also allows you to insert bells and whistles normally not available in personal word processors such as hard spaces, soft hyphens, and special printer symbols. It has a "quick phrase" facility for storing and recalling frequently used passages of text.

The search-and-replace commands are also very powerful for a personal word processor in this price range. The Find/Change control panel lets you specify whether to search for whole or partial words, keep the search case sensitive or not, and keep capitalization on the replace. You can search for formatting commands and wildcards.

Unfortunately, these niceties are negated by the program's drawbacks. The cursor occupies an irritating "phantom space" between two characters; consequently the text is always jumping back and forth depending on where the cursor is. There is no overtype mode. Since there is no page-preview function and no on-screen page breaks, you are forced to take an educated guess about how the printed

page will eventually appear.

On the other hand, the help menu is useful once you figure out the *Wordvision* language. You select from a main menu of topics and indicate where you would like more detail. You keep selecting "more detail" from a series of submenus until you locate the information you need. And Bruce & James's customer support alone may justify the price of the package. When a customer calls up with a Dvorak keyboard or a sheet feeder and needs a customized program or set of commands, these guys really get to work.

Wordvision offers a series of separate "PowerPacks" to support advanced formatting, printer support, mail-merge, spelling checker, and thesaurus features. The Bruce & James rationale is that while you initially want a simple word process-

ing tool, you can add more functions as your needs grow. Bear in mind that once you spend the extra money to purchase these powerful but often difficult-to-use PowerPacks, you have spent the same amount of money you would have on a more powerful processor.

Wordvision enjoys a true cult following. In its heyday, as a backlash against cumbersome products like *WordStar*, *Wordvision* provided a tremendous service to the less technically oriented PC community. *Wordvision's* visual menus may be some temporary relief for the computer-phobic, but ultimately, if your intention is to master more than one application, it is worth the struggle to learn the keyboard as it is so that you do not have to deal only with *Wordvision's* way.

—Robin Raskin



Wordvision
Bruce & James
2553 Leavenworth, #103
San Francisco, CA 94133
(415) 775-6800

List Price: \$50.00



Requires: 96K RAM, one disk drive
CIRCLE 651 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN
Margins: LM, RM, LM, RM, AL
Line Spacing: LS-1-2, SB, KP
Character Formats: VP, AP, BO, UL, SP, SB, ST, CB, ASC
Page Formats: LIT, LIT, LTB, GL, GR, LP-114, HL, HR, FL, FR, PL-14, PW-14
Tabulation Format: TL, TC
Header/Footer: SL, OF, AN, RN, PA

EDITING SCREEN DISPLAYS

Next Display: RC, CC, LN, PN, DF
Text Display: SL-20, SC-156, WA, FJ

TEXT ENTRY AND EDITING

Typing/Fitting: FC, ID, CA
Deletion Formats: CD, WA, WE, WB, LA, LE, LB, SA, SE, SB, PA, PE, PB

Character Features: AC, SH, HB

Cursor Movements: CM, SD, NC, NL, NW, NS, NP, NSC, NPG, BL, BS, BP, BSC, BPG, BD, SU, SD, SL, SR, JM

Block Editing Tools: HL, AB, CH, WD, LN, SE, PH, CE, BC, MV, CP, SW, DE, AR, DF

Search and Replace: FO, CS, CL, CP, WW, AS, WS, WR, PS, FR, VY

Undo Utility: UD, RP

PRINTER SUPPORT
NP-8, PT, PS

FILE HANDLING
Document File Strategy: DF, DF, ASC, DS-9000
KBYTES

Document Saving: NB, DB, MS, AT, AD, SW, EN, ER, DI
DOS Facilities: DR, MU, CDK
File Import and Export: IM, IAP, EAP

SPECIAL FEATURES

Spelling Checker: WD-110000, UG, US, ED, IC, BG, MR, BM, AD, QK
Others: SF, TM



Wordvision provides some innovative user aids; for example, the indicator bar on top of the screen shows the cursor's position in the document.

Personal

WRITE 'N SPELL

Write 'n Spell from PSI sits right on the fence between personal and professional word processors. It can generate documents of 100 pages or more and has a lot of features not usually associated with personal word processors, but it lacks some of the features common to those in the professional category.

It offers, for example, automatic indenting or outdenting to your heart's delight through its powerful margin release command, but it has no footnote, index, or table of contents features. You can align headers and footers from the top, left, and right edges, but text macros are not available, block operations are limited to 40 lines of text, and no wildcards are allowed in search and replace.

The program has no opening or main menu. Instead, it boots to the editing/writing screen with the End of Current Text message near the top of the screen, just below the function key prompt line and the cursor. The function keys in combination with the Alt and Ctrl keys yield 18 commands—far too many to fit on the prompt line. PSI therefore uses an ingenious device: When you press Alt or Ctrl, the prompt line changes to the new function key assignments instantly, so there's less to memorize.

GETTING HELP Help is always available with the F1 key, presenting a list of 12 categories, such as Format Commands or Subdirectory Usage, that lead to specific information. This is not quite context-sensitive help—a feature listed on the outside of the manual—but it's useful.

The F2 key opens a window of disk options over the document. You can display a directory of any drive; get, store, or merge a document; store highlighted text to a disk file; or rename, erase, or copy a document. It's a useful set of utilities. The F3 and F4 keys control bold and underlined, and you can use them while you type or edit. They're handy for quickly changing text to bold, underlined, or both.

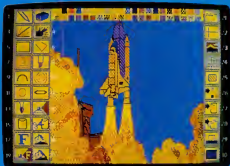
Typing or editing text is done in 21 lines by 80 columns of unformatted text. To see your margin settings, line formatting, page breaks, headers, and so forth, you must

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CIRCLE 135 ON READER SERVICE CARD



press the F6 key. This begins the preview function, which automatically scrolls your text nonstop up the screen exactly as it will look on the printer. You can stop and re-start the scroll at any time by pressing the spacebar.

NOT FOR WYSIWYGERS For those who like to write text first as an 80-column chunk, then format later, *Write 'n Spell* is a powerful personal word processor. If you prefer the WYSIWYG school of screen editing, you had better stay away from this program.

Format codes are preceded at the beginning of a blank line by a command marker that you call up by pressing the F8 key. You enter commands as mnemonic codes, and you must memorize their formats. For example, `lm10:rm70:ce1` sets the left margin to 10, the right margin to 70, and turns

on the line-centering feature. Header and footer commands are more difficult to memorize.

One quirk that takes some getting used to is the functioning of the PgUp and PgDown keys. When you press either one, the text begins scrolling in the desired direction, but it doesn't stop scrolling until you press the spacebar or reach one end of the file. The feature seems very clunky at first, but you'll grow fond of it, particularly as you become skilled in scrolling your screen in either direction just the number of lines you want. It's also handy when you're taking a fast, general browse through a document.

My favorite feature of this program is the spelling checker, which is based on phonetics. You can type a word the way it sounds and rely on the program to recommend the correct spelling about 90 percent

of the time. I tested a list of ten words, entered as *newmoania*, *sikologicckle*, and so forth, and the spelling checker returned *pneumonia*, *psychological*, and so forth among its first three choices for all ten. It works like magic.

The spelling checker works at medium speed, beginning at the cursor and proceeding to the end of the document. When it encounters a word foreign to its 90,000-word dictionary, it highlights the word, and three options appear: Ignore, Add (to dictionary), and Suggest possible spellings. If you type S, the program will list its best eight guesses and then give you options to replace the word with one from the list automatically, retype the word manually, or accept the word and add it to the dictionary.

Write 'n Spell's spelling checker is intelligent and useful; it's not strong enough, however, to persuade me to use the program. I prefer to see the effects of my formatting on screen, at least more than just boldface and underlining. The program is also difficult to learn.

There are strong arguments for *Write 'n Spell* though. Its mail merge is built in, and merging information from 1-2-3, MultiPlan, dBASE III, PFS:FILE, and others is easy. A conversion utility that brings in documents from the major word processors is included, too.

If you want a program that has more power than most personal word processors, *Write 'n Spell* fits the bill. But just remember that you'll spend a good deal more time learning to use it. *Write 'n Spell* is powerful but sacrifices simplicity.

—Phil Wiswell

WRITING ASSISTANT 1.01

IBM's *Writing Assistant* is based on PFS: WRITE, and to most people they seem identical, simple-to-learn word processing systems; ideal for memos, correspondence, and other short documents. Indeed, there is little you can do with one that you can't do with the other, although I will state my preference for



EXPANDED FACT FILE

Write 'n Spell

PS1

51 Freedom St.

Norham, MA 02194

(617) 444-5224

(800) 343-4074

Requires: 256K RAM, DOS 2.0 or later, one disk drive (two recommended for dictionary).

CIRCLE 650 ON READER SERVICE CARD

List Price: \$149.95



FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC, JN

Margins: LM:1, RM:250, AL, AO

Line Spacing: L:1-3, WC

Character Formats: VP, BO, UL, SP, SB, CB, AC

Page Formats: LIT, LLB, LP:250, HT, HL, HR, FB, FL, FR, PL:250, PW:250, MP

Tabulation Format: TL, TC

Header/Footer: SL, UM, OF, AN, RN, PA

EDITING SCREEN DISPLAYS

Next/Display: CC, LN, OF, OK

Text Displays: SL:21, SC:90, WA, FJ

TEXT ENTRY AND EDITING

Typing/Editing: FC, IT, OO, CA

Deletion Formats: CD, LA, OA, DE

Character Features: HB

Cursor Movement: CM, CK, NC, NL; NW, BL,

BSC, BO, SU, SO, JL, CK

Block Editing Tools: HL, AB, CO, MV, CP, DE,

AR, HA, OF

Search and Replace: FO, CS, CI, WW, FS, PR, VY

Undo Utility: NA

PRINTER SUPPORT

NP:72, UP, PT, SF:2, ES, OE, CH, PW, FS, AE

FILE HANDLING

Document File Strategy: FD, DF, CT, AS, C

08-311 LINES

Document Saving: NB, MS, EN, EA, EL

DOS Facilities: DR, MU, ADK, ADP

File Import and Export: IM, IAP, EAP

SPECIAL FEATURES

Spelling Checker: WD:90000, UG, OE, IC, BG,

MR, IM, AD, MM, QK

Other: MM, MMD, GR, SC



Write 'n Spell's spelling checker offers a wide range of alternatives to unusual misspellings.

Writing Assistant up front.

The program is designed around a main menu of six options for creating, formatting, printing, storing/retrieving, and clearing a document, and exiting to DOS. Most of these have very few suboptions because the design philosophy here is to give you only what you need, not necessarily what you want, in a personal word processor. As a by-product, the menus and main writing screen are attractively uncluttered, and you can customize your screen with eight preset color schemes.

The writing/editing screen displays a rectangle containing 22 lines of text, beneath which is an easy-to-read ruler line (too bad the ruler line isn't at the top of the screen). The two status lines at the bottom of the screen yield the name of the current document, the percentage of memory full, the line and page numbers, and the status of the Ins key. Status for the CapsLock Key would have been nice. A prompt to press F1 for help and Esc to return to the main menu is always present.

TRUE WYSIWYG Most of the program's limited formatting is performed on-screen during editing in true WYSIWYG style, but a separate menu screen exists for setting the four global margins, page length, and two-line headers and footers. *Writing Assistant* is uncomplicated by such features as paragraph and page formatting. Line and character formatting is all you've got.

F5 brings up the character options: boldface, underline, and red, green, or blue (a neat feature for color printers). The options are available only for existing text, which means you can't type with enhanced characters. F3 gives you the choice of setting the current line flush left, right, or centered. F4 lets you set tabs. Other than a few options on the define page and print menus, that's as fancy as your formatting can get with *Writing Assistant*.

Editing commands are implemented by the remaining function keys alone and in combination with the Shift key. A card-board template is included to remind you of their meanings. Editing is so easy that you may never use the two help screens. One just duplicates the function key template, and the other lists the 14 cursor movement keys. The rest of the program is

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so intuitive and self-explanatory that the lack of further help screens should bother no one.

Other function keys control search and replace, block operations, file merge, and the spelling checker. The search-and-replace function goes forward only. However, wildcards are accepted, case is preserved automatically, and replacement can be either verified or automatic. This feature is more powerful than most of the program's users require but does not sacrifice *Writing Assistant's* simplicity of operation.

Block operations are just as easy. Simply position the cursor at the beginning of the block, press the function key for delete, move, or copy, highlight the block by moving the cursor to its end, and press F10. For move and copy you are then prompted to move your cursor to the block's destination. A handy Reuse Block

key lets you recall the most current deletion.

Merging files at the cursor position takes no more than a press of a key and the name of the file you want merged. Still, there's only so much to this feature when your maximum document size is 30K bytes.

The print menu isn't much. There are just six options for range of pages, printer or disk file, pause between pages, number of copies, single or double spaced, and printer offset. Nothing fancy, nothing frilly, no confusion. There is one exotic feature here that ought to be included with every word processor: automatic envelope formatting.

One of the most important features of this package is the spelling checker, which runs automatically from the cursor position at a touch of F2. It's a version of IBM's *Word Proof* that opens a window of

four choices beneath any highlighted word not found in the dictionary. You can list the program's best eight guesses, ignore the word and continue proofreading, add the word to the dictionary and continue, or add the word and end the spelling check. It is fast, reliable, and resides on the single program disk.

IBM's *Writing Assistant* integrates with *Filing Assistant* and *Graphing Assistant* for mail-merge and for including business graphs with your text; they both increase the program's flexibility and range of uses.

Would I buy *Writing Assistant*? You bet. In fact, I did, and the program has become my standard word processor for short, plainly formatted documents. Why didn't I buy the new version of *PFS: WRITE*? You don't get that nice IBM box for your documentation, that's why.

—Phil Wiswell



EXPANDED FACT FILE

Writing Assistant 1.01

IBM Corp.
P.O. Box 1328-C
Boca Raton, FL 33432
(305) 982-3336

List Price: \$149



Requires: 128K RAM, DOS 1.1 or later, one disk drive.

CIRCLE 662 ON READER SERVICE CARD

FORMATTING FEATURES FOR FINAL TEXT

Paragraph Formats: JL, JR, JC

Margins: LM:1, RM:78

Line Spacing: LS:1-2

Character Formats: BO, UL, ASC

Page Formats: LIT, LLB, GL, GR, LP:102, PL:17,

PW:11

Tabulation Format: TL

Header/Footer: SL, AN, PA

EDITING SCREEN DISPLAYS

Next Display: RC, CC, LN, PN, DF

Text Display: SL:22, SC:78, WA

TEXT ENTRY AND EDITING

Typing/Editing: IT, OD, CA

Document Formats: CD, WA, LA

Cursor Movement: CM, CK, NC, NL, NW, NSC,

BL, BSC, BD

Block Editing Tools: HL, AB, MV, CP, DE, AR,

HA

Search and Replace: FO, CP, WW, AS, WS, WL,

VY

Undo Utility: UD

PRINT REPORT

NP:8, PT, CH, PS, OF, AE

FILE HANDLING

Document File Strategy: FD, DF, OTH, DS:30000

BYTES

Document Saving: NB, MS, EN, ER, EL

DOS Facilities: DR, ADK, AR

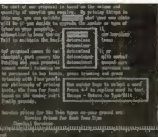
File Import and Export: IM, IAL, EAL

SPECIAL FEATURES

Spelling Checker: WO:125000, UG, ED, IC, BG,

MR, IM, AD, QK

Other: CS, MMD



IBM's *Writing Assistant* "windows" its spelling checker on top of your text while providing alternative spellings.

ZENWORD 1.00

In *ZenWord 1.00* I have finally found a personal word processor I like. I mean *really* like. And one that I can recommend without the slightest hesitation. The program is fast enough to stay out of your way, full-featured enough to do anything a personal word processor should do, and built around a command structure that is both easy to learn and use.

Since it can be had for a mere \$29.95, not only is it one of the best personal word processors, it's also one of the least expensive.

Part of what I like about *ZenWord* is its uncluttered look. Normally, when entering and editing text, the only thing on the screen besides the text is a small status box displayed in the lower right-hand corner. This box tells you what percentage of memory is still available and whether the word-wrap and insert modes are toggled on or off. To enter a command, you hit Esc; a one-line menu appears in the bottom line of the screen.

A SIMPLE COMMAND STRUCTURE

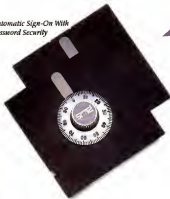
ZenWord's command structure is deceptively simple. The one-line menu consists of commands listed in alphabetical order.

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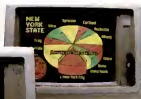


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Notes from the UnderGround



WordStar

Two longtime WordStar devotees expound on the reasons Micro Pro's classic word processor remains dear to their hearts—despite the competition.

WordStar isn't sexy anymore. Miami vice cops don't wear WordStar. Madonna doesn't shave with it. George Bush doesn't golf with it.

People used to call WordStar "the Mercedes of word processors." Now they call it "that rusty old jalopy."

Never mind that the old heap still purrs like a cheetah and watches many new "performance" models disappear in the rearview mirror. True, it may not have a fuel-injected windshield washer or a talking emergency flasher, but it isn't weighted down with a lot of performance-robbing emission controls either.

Of course, it's hard to learn. Everybody says so. Never mind that hundreds of thousands of writers, secretaries, executives, circus clowns, and civil servants have somehow managed to wrestle it to the mat while internationally renowned institutions of higher learning keep calling in crack archeologists in a futile attempt to decipher the *Microsoft Word*

and *XyWrite II Plus* manuals.

"You still use WordStar?" sneer new-wave Yuppie professionals who've mastered *MultiMate* sufficiently to draft one-page memos and write WordStar mavens off as toothless old geezers. "My god, why?"

Why indeed? Well, for some of us there are special reasons. The product's very name has a mellifluous ring that gives us a warm glow. And part of our business requires maintaining our fluency as WordStar experts and aficionados. But those aren't the main reasons we or hundreds of thousands of users have chosen to stick with the brightest star in the MicroPro constellation. So let us count the whys.

WORDSTAR IS UNIVERSAL Go to a computer show anywhere in the world, and it's a safe bet more than half the screens will be displaying WordStar's ubiquitous main menu. WordStar is quite simply the lingua franca of the micro-computer word processing world. You can get it in German, French, Japanese, and, for all we know, Urdu.

■ WORDSTAR

Developed for 8-bit CP/M machines, *WordStar* runs on just about anything—S-100 system or Osborne I, IBM PC or NEC laptop, and even an ancient Apple II+ with a CP/M board. The menus are the same, the commands are the same, and the files are the same—always.

True, some machines may not offer function keys; portable versions omit a couple of useful features; and the Apple II+ lacks cursor keys. But if you can boot the system and type WS, you can run *WordStar* on just about any machine alive.

If you've got a modem and some penny-ante communications software, you can swap files with any *WordStar* user anywhere. Try sending a *MultiMate* file (or, god forbid, an EBCDIC *DisplayWrite* file) to your friend with a Kaypro II and see how far he gets with it.

Best of all, *WordStar*'s mammoth user base means if you get stuck trying to perform some arcane procedure on your Compaq, you can phone your pal with the Osborne and work it through. Ninety-nine times out of a hundred, you can duplicate your *WordStar* problem and dope it out on any machine it runs on.

Even savvy Borland International recognizes and bows low to *WordStar*'s omnipresence. Turbo Pascal's built-in editor and *SideKick*'s NotePad both incorporate all the major *WordStar* editing commands. In fact, the only way to exit the Turbo Pascal editor is via a command utterly baffling to anyone but a *WordStar* user: Ctrl-KD.

WORDSTAR IS ELEGANT Yes, elegant. We've fooled around with dozens of pretenders to the *WordStar* throne, and we

could write volumes about their multifold offenses. They use stupid mnemonics not even Dumbo's mom can remember. They insist upon particularly awkward key-stroke combinations to accomplish common tasks. They steal major portions of the screen with meaningless messages that include their own names. They insist upon presenting so many menus that you never get to eat the meal. They make your text disappear while accomplishing the most rudimentary tasks, and they fail to keep up with your latest keystrokes.

WordStar's great overriding principle is that it works the way you do. It gives you

■ “You still use *WordStar*?” sneer new-wave Yuppie professionals who’ve mastered *MultiMate*.

help when and if you need it. Otherwise, it stays out of the way and minds its own business. And when it's getting too friendly, you can politely tell it to shut up.

In the rush for the cheese of the mouse-trap, program designers seem to have overlooked the way *WordStar* lends its users a helping screen. That's a pity. You may not like the execution (though we do, mostly), but the conception is brilliant.

All *WordStar* commands are issued with Ctrl key combinations. In its default configuration, *WordStar* reserves the bottom half of the screen for the user's text. The rather ponderous main menu, occupying the top half, lists all the single-key commands along with the first letter of all the two-key commands.

Once you learn what's on this menu (maybe 20 minutes after you boot the program for the first time), you can eliminate it. Thereafter, when you hit the first letter of a two-key command, *WordStar* waits for you to hit the expected second letter. If you strike with dispatch, *WordStar* simply executes the desired command. But if you hesitate, *WordStar* figures you may need

help and pops up a menu of second-key possibilities. The instant you choose one, that menu disappears.

If it weren't such a cliché, you could call this command strategy a rudimentary form of artificial intelligence. The program senses hesitation, deduces that you need help, and sends some out right away. But you can also choose to go it alone—every level of help in *WordStar* can be switched off, and on again, at the touch of a couple of keys.

Often forgotten is that additional help for the more arcane items, such as the notorious dot commands, is available from a series of pop-up screens. If this wasn't the first major microcomputer program with on-line help, it is certainly in the running. The help isn't context-sensitive, but it's succinct and to the point.

Furthermore (and as far as we're concerned, this is every bit as important), you can perform every single *WordStar* function while you're working on your document. You don't have to save the text and exit to some utilities menu to get a disk directory. You can copy or delete any file, including ones you're not working on and ones on other disks, whenever you choose.

You can even print a file while you work on another one—or even the same one—without waiting for some sort of function menu to print the file to disk, repaginate it, or perform some other dilatory chore. To paraphrase a classic motto: *WordStar* is ready when you are.

WORDSTAR IS FAST *WordStar* was written for 8-bit CP/M machines. The original overriding requirement of *WordStar* was that everything—operating system, program code, and data—had to fit into the 64K bytes of RAM that was the inviolable maximum on those machines. If that required swapping of program code from disk to RAM, so be it.

The same went for text. Unlike many others, *WordStar*'s designers recognized that documents of reasonable length would probably not squeeze into the limited memory available. Unlike many, their solution was not an artificial limitation on document length or a page-at-a-time approach. The program was designed instead to swap portions of longer documents to and from the disk automatically. The prac-

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tical limitation on a *WordStar* document is related only to the size of the disk.

What this means in practice is that the one thing that slows *WordStar* down is disk I/O, and that means *WordStar* keeps getting faster with each iteration of new hardware. Floppy-disk users with IBM PCs quickly learn to put *WordStar* program and data files on RAMdisks for speed that can run rings around almost everything else on the market. XT users usually keep the overlay files on RAMdisk and use data files from hard disks. The improved speed and hard disk times of the AT make the program absolutely fly.

Ultimately, *WordStar*'s beginnings in the 8-bit CP/M world may be a blessing. The computer corollary to Parkinson's First Law—Programs expand to fill the RAM available—has given us six-disk programs that run with all the alacrity of a moribund hippopotamus.

WordStar doesn't get in the way of enhancement products and has actually been an impetus in generating them. Many other programs add features and speed by hogging the keyboard and/or screen so totally that enhancement programs don't have a chance. *WordStar* isn't utterly plain-vanilla in this regard, but it's not much fancier than chocolate.

When *ProKey* and other keyboard enhancers came on the market, *WordStar* users were the first to embrace them. When new-generation RAM-resident programs like *SideKick* arrived, *WordStar* coexisted peacefully, its minimal demands on memory allowing multiple packages to take up residence. Try to squeeze a decent-sized RAMdisk, a print spooler, *SideKick*, and *SuperKey* beneath one of the more elephantine word processors and something is likely to get squashed to death.

WordStar has led to the development of

scads of enhancement products. There are books for *WordStar* users of all levels. There are products to generate mailing lists, footnotes, indexes, tables of contents, and even movie scripts. There's a good on-line thesaurus, and there's an excellent selection of spelling checkers. *SideKick*'s NotePad works as a rudimentary windowing program with most standard *WordStar* commands. Competitors may claim that their products have many of the add-on features built right in, but the fact remains that no other word processor has so many enhancements available.

WordStar's vastly inflated list price is commonly chopped in half. Or less. Many users acquire the program as a toss-in with their computers: Kaypro and Sanyos still come bundled with the MicroPro line. Still others get it via less ethical means. It all adds up to a user base unrivaled anywhere. That's because:

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■ WORDSTAR

WORDSTAR ISN'T COPY

PROTECTED *WordStar* has never bought into the copy-protection idiocies that have plagued many competitors. It's comforting to know that you can keep multiple copies of good old *WordStar* all over the planet against the day your disk controller goes haywire.

Better still, you can keep different versions of *WordStar* customized for different applications and switch among them at will. Contrast that to *Microsoft Word's* just-one-backup approach and you begin to understand why *WordStar* users remain in the fold.

Even the **WINSTALL** program that comes with *WordStar* allows more customizing options than most other word processors have heard of. But, as our book, dozens of articles, and the sidebar here shows, *WordStar* can be customized to a truly mind-boggling degree. This trait

is in part another residual effect of the hacker days of microcomputing, when every user was his own programmer and there was no telling what sort of terminal, screen, or printer might be hooked up. The program had to, and did, work with virtually anything that might come down the pike.

Oh, there are still a few weird bugs left—on special occasions the program playfully hides half a dozen pages of your text, pretending it's lost them. But it's only funning; in years of working with *WordStar*, we've never lost a word of text short of a power failure. We've used it in all kinds of tricky test situations, and it's come through like a champ.

Many of the current word processing wars are being fought on the battlefield of features, one arena where *WordStar* definitely loses. But not one of those features is anything more than an incremental improvement. Comparing *WordStar* to a

typewriter is like comparing a car to an ox-cart. Comparing a later-model word processor to *WordStar* is like comparing a Cadillac to a Toyota; you may want the Cadillac's extra weight and automatic light-dimmer, but it won't get you where you're going a whole lot faster.

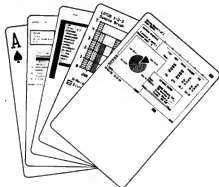
Many new word processing features are rather marginal anyhow, designed for people who expend more brainpower on the format of documents than on their content. Even though the proportional-spacing IBM Executive typewriter never remotely approached the success of the nonproportional Selectric, it's suddenly become important for documents to have proportional spacing. Even though there's been a move away from right-justified text in sensible design circles, it's suddenly become de rigueur to right-justify everything from a letter to memo. Even though many users find

(continued on page 268)

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■ WORDSTAR

HANDY WITH A WRENCH? TRY DO-IT-YOURSELF WORDSTAR

Tinkering around under WordStar's hood is easier than you might think. Mel and Ward are the best in the business, and they show you their best tricks here.

WordStar can be made to perform some astonishing tricks if you're willing to make a few modifications ("patches") to its code. Some of the following material has appeared in different form in the authors' *UnderGround WordStar* book/disk package. Much of it, however, is brand-new, prepared in response to input from loyal readers and users. In trying any of these suggested patches, however, be sure always to use a copy—never the original—of the WordStar program.

WINSTALL'S UNKNOWN OPTION Think you know everything WINSTALL can do? Think again. One of its undocumented features is the "custom modification routine" that lets you change any settings in the first 2,120 bytes of WS.COM. You can do this by entering either the hex address of the feature or the "label" assigned to that feature by MicroPro's designers (something you're unlikely to know unless you possess some very old WordStar documentation). This lets you patch many items otherwise inaccessible from WINSTALL.

To use the customizing routine, of course, you need to know its address and what to put there. You can learn these things either from the tables in our book or from articles like this. Then you can enter new data with the same methods as you do in the rest of WINSTALL.

To use this undocumented routine, just fire up WINSTALL and follow the directions until you get to the installation menu. There, instead of selecting one of the alphabetic choices, you hit the Plus key. WINSTALL will then step you through the patching process.

But having just introduced the proce-

sure, we're going to advise against bothering with it. WINSTALL is annoyingly slow (changing just 1 byte can take 5 or 10 minutes), and even the patching feature won't access all the areas you might want to change. Its only advantage is that it accepts entries in decimal notation. So consider instead our recommendation that you master hexadecimal notation and use the DOS DEBUG.COM facility. By using DEBUG you can customize anything in a few seconds.

WHY, OH, WHY DID I DELETE THAT? WordStar's keystroke dispatch table can be modified to perform all sorts of magic. Our favorite trick is using it to tame Ctrl-Y, which all too often deletes a whole line of text when you accidentally overshoot while trying to hit Ctrl-T.

By changing the dispatch table you can force WordStar to make you hit Ctrl-Y twice to cause a line deletion; if you tap it once by accident, you can render the error harmless by striking any other key. Put a copy of WS.COM and DEBUG.COM in drive A: and type in everything you see underlined in the inset below. Hit the Enter key after each line

```
A>DEBUG WS.COM
-E 338 18
-W
Writing 5388 Bytes
-Q
```

Now your copy of WS.COM will delete a whole line only when you tap Ctrl-Y twice in a row.

FUNCTIONING WITH DEBUG The code for all 20 internal WordStar function key settings—the conventional function keys plus Home, PgUp, End, Ins, Del, and the four cursor keys—is located at the end of the keyboard dispatch table, between addresses &H66E and &H721.

NOW BETTER PRINT-QUALITY IS JUST A KEYSTROKE AWAY. LETTRIX.

(The &H preceding the number simply tells you that it's in hexadecimal notation). To see the hex codes and the characters they represent, type in the BASIC program shown in Figure 1, put it and BASICA.COM on the same floppy or in the same hard disk subdirectory as your WordStar program, and type BASICA WSFUNKEY to run it. The program works with WordStar Versions 3.24, 3.3, and 3.31.

Each function key listing is made up of 9 bytes. The first is the scan code of the key and is followed either by the scan code for the Ctrl version of that key (for F1 through F10, but don't get your hopes up—Ctrl codes for these keys won't do anything) or by a 0. You probably won't want to change these bytes.

The 3rd byte is the number of key-strokes (six or fewer) the function key will execute, and the remaining 6 bytes are the actual keystrokes. If all six positions are not used, the unused bytes must be filled with hex 2As (asterisks).

To change a function key setting, run WSFUNKEY and jot down the addresses of the "length" (3rd) and "actual code" (4th through 9th) bytes for that key. Then get into DOS and use DEBUG's E command to make your changes.

For example, to change F1 from the factory setting of Ctrl-JH (which sets the help level) to the much more useful Ctrl-KS-Ctrl-QP (which saves your file to disk and then returns to the cursor position), put DEBUG.COM and a copy of WS.COM on drive A:. Then type in the underlined portions of the inset below, again hitting the Enter key after each line:

```
A>DEBUG WS.COM
-E 66F 3B 5E 84 0B 13 11 18 2A 2A
-W
Writing 5388 bytes
-Q
```

FOUR EXTRA FUNCTION KEYS

The stock version of WordStar gives you only the 20 function keys we've just discussed. Would you like to have four more—without a keyboard enhancer?

WordStar keeps track of the beginning of the function key table in addresses &H2431 and &H2432 of Versions 3.3

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WORDSTAR

and 3.31 of WS.COM; for Version 3.24, the addresses are &H2427 and &H2428. When you hit a function key, WordStar looks at these addresses to find its chart of function key keystrokes, normally at address &H066E, though this must be treated in the "backwards" manner that becomes second nature to PC assembly language programmers: the last two digits (6E) go into the first address; the first two (06) go into the second.

Now it happens that the table at address &H066E is preceded by a small amount of empty space that is rarely used by anyone who hasn't read our book's explanation of redundant keyboard entries. These entries allow you to turn such seldom-used keys as the Tilde and Braces into mini function keys.

You can assign up to six keystrokes to each of four individual keys, including any shifted function key, any Alt-alphabetic key, and even the shifted Tab key. The only requirement is that the key produce a 2-byte scan code, which our SCANCODE program (listed in Figure 2) will signify by reporting the word SCANCODE rather than the words ASCII CODE.

The new functions we'll install as examples are some for which we're constantly asked but until now haven't been able to deliver. We'll add Ctrl-A to Ctrl-Cursor left, and Ctrl-F to Ctrl-Cursor right, so that those cursor keys will move the cursor by word, without disabling Ctrl-A or Ctrl-F. Next, we'll turn Alt-F10 into the editor's delight, Ctrl-B-Ctrl-QP, which allows you to reformat a paragraph without moving the cursor (provided you've turned Hyphen-Help off). And just to demonstrate the range of possibilities, we'll transform Alt-I into a key that types out the six-letter name of our friend Irving.

Each function key needs 9 bytes of information: scan code, length, and actual codes for a key. In an off-the-shelf version of WS.COM, there's room for four keys in front of the current table; some quick hex math—&H066E minus &H24 (which is 9 times 4)—shows the new table must start at address &H064A.

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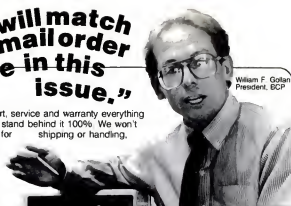
— Ted Forgeron, PC Tech Journal

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That's the address we'll put in addresses &H2431 and &H2432. (For Version 3.24, we'll use addresses &H2427 and &H2428.) But remember, you must use the "backwards" notation, which means &H4A belongs in the first byte, and &H06 in the second. Since the &H06 is already there, you needn't change it.

To figure out each function key byte, you first determine the key's scan code and the ASCII values of the key codes you want to patch in. There are charts for this in the BASIC manual, but since they're not in hex, you may find it easier to run the program in Figure 2. Function keys return scan codes; other keys return ASCII codes.

The scan code for Ctrl-Cursor left is &H73, so that value becomes the 1st of the 1st 9 bytes. The 2nd byte, as usual, is 0. The 3d, or the length of the command, is &H01. So is the 4th, the value of Ctrl-A itself. The next 5, the empties, get the &H2A asterisk treatment.

To do this with DEBUG, type in the underlined portions of the routine that follows. To keep things clear, we've done things one key and one line at a time. The first line after entering DEBUG resets the pointer (for Version 3.24 enter 2427 instead of 2431); the next four respectively set up the two Ctrl-Cursor, Alt-F10, and Alt-I functions described above. The W writes all the changes to disk, and the Q exits DEBUG.

A>DEBUG MS.COM

E 2431.4A

E 648.73 00 01 81 82 2A 2A 2A 2A 2A

E 653.74 01 81 82 86 2A 2A 2A 2A 2A

E 65C.77 01 82 82 11 18 18 18 18 18

E 665.72 01 86 42 72 74 62 6E 67

W Writing 5388 bytes

Q

From now on, your Ctrl-shifted cursor key combinations will help you navigate through your text, your Alt-F10 key will aid in editing, and Alt-I will type out Irving's given name in a trice.

CHANGING THE TAB BACK Patching the default tab stops in WordStar is undocumented, but it's easy once you know the trick. It's a simple matter of 1s and 0s—and, we've discovered, 2s.

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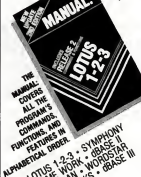
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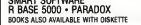
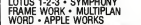
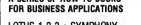
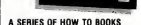
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WORDSTAR

Beginning at address &H429C in Version 3.24 and at &H43BA in Versions 3.3 and 3.31 is a long string of bytes with only 0s and 1s, each digit representing a column of text. When you turn on an uncustomized version, you'll find tab settings at spaces 6, 11, 16, and so on. The pattern you'll find in the code, therefore, looks like this:

```
00 00 01 00 00 10 00 01 00 10
```

and so on. In other words, it's the pat-

tern of 1s and 0s that counts. To remove a tab, change a 1 to a 0; to insert a tab, change a 0 to a 1. You'll have to do all this two at a time, since each memory position is a two-digit hex number.

We explained all this in more detail in our book. But what we've learned since is that to create decimal tabs, all you need to do is put a 2 instead of a 1 in the proper position.

Nobody would claim *WordStar's* off-the-shelf defaults were chosen by

```
100 'WSFUNKEY.HAS -- Copyright (c) 1985 Hard/Soft Inc.
110 DEFINT A-Z:SCREEN 8:WIDTH 80:KEY OFF:COLOR 2,8,0:CLS
120 SS=STRING$(15,45):PS=STRING$(2,32):TS="AD-VAL"+PS
130 ES=CHR$(32):FS=STRING$(8,32):STRINGS(78,45):OLDIS="H"
140 OPEN "ws.com" AS #1 LEN=1:FIELD #1 AS AS
150 LOCATE 1,9,0:PRINT "ScanCode ScanCode Length";PS;
160 PRINT "<";SS;ES;"Actual Codes";ES;ES;">"
170 LOCATE 2,9:FOR A=1 TO 9:PRINT TS;NEXT:PRINT FS
180 FOR A=0 TO 171 STEP 9:FOR H=1 TO 9:GET 1,A:H+139#C=ASC(AS)
190 IF NOT F THEN LOCATE A/9+4,H*8+1:PRINT HEX$(A+H+1645);
200 COLOR 0,2:LOCATE A/9+4,H*8+4
210 IF H<4 THEN IF F THEN 240 ELSE GOSUB 330:GOTO 230
220 IF K THEN GOSUB 350:GOTO 230 ELSE GOSUB 330
230 PRINT HS;COLOR 2,8
240 NEXT:GOTO 1
250 IF F THEN 290 ELSE F=-1:LOCATE 24,1:PRINT FS;
260 FOR A=4 TO 23:READ BS:LOCATE A,1:PRINT BS:NEXT
270 LOCATE 25,9:PRINT "Hit H for hex codes, C for actual";
280 PRINT ES;"characters, or any other key to end:";
290 IS=INKEY$:IF IS="" THEN 290 ELSE IS=CHR$(ASC(IS) AND 95)
300 IF OLDIS=IS THEN BEEP:GOTO 290 ELSE OLDIS=IS
310 IF IS="H" THEN K=B:GOTO 100
320 IF IS="C" THEN K=-1:GOTO 100 ELSE LOCATE 1,1:CLOSE:END
330 IS=HEX$(C):IF LEN(HS)=1 THEN HS=ES+H+H5 ELSE HS=ES+H5
340 RETURN
350 IF C>31 THEN HS=PS+AS ELSE HS=ES+""+CHR$(C+64)
360 RETURN
370 DATA F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,Home,CtrlUp
380 DATA PgUp,CtrlLft,CtrlRt,End,CtrlDn,PgDn,Ins,Del
```

Figure 1: The WSFUNKEY.BAS program displays the hexadecimal values and actual characters of all 20 function keys in WordStar versions 3.24 and higher. To use, type it in (WordStar's N mode works well) and save it as WSFUNKEY.BAS. Then put it, BASICA.COM, and WS.COM on the same disk and type BASICA WSFUNKEY. Hitting C or H toggles the display between the actual characters WordStar executes and the hex codes for the characters' keystrokes.

```
100 'SCANCODE.HAS -- Copyright (c) 1985 Hard/Soft Inc.
110 FOR I=1 TO 18: KEY I,": NEXT I
120 PRINT "Hit any key in any shift state..."
130 IS=INKEY$:IF IS="" THEN 130
140 IF LEN(IS)<2 THEN 200
150 PRINT "SCANCODE: <H>";
160 TS=HEX$(ASC(RIGHT$(IS,1)))
170 IF LEN(TS)<2 THEN PRINT "0";
180 PRINT TS
190 GOTO 130
200 PRINT "ASCII CODE: <H>"; GOTO 160
```

Figure 2: When any key in any shifted state is struck, SCANCODE.BAS reveals its scan or ASCII code.

the sagest of seers. When using a daisy wheel printer, *WordStar* defaults to microjustification to justify text. Instead of inserting spaces only between words to make things even at the right margin, the program puts some of the space between letters within words.

With justified text, that's usually desirable, but it creates problems with columnar material. The approved technique is to enter the dot command .UJ OFF before the tabular data and .UJ ON after the section, so you return to normal microjustification. Some versions of *WordStar* respond with a question mark in the rightmost column, indicating that they've never heard of such commands. In practice, however, they work just fine.

But undocumented is the fact that, as delivered, *WordStar* attempts to microjustify even unjustified text when used with daisy wheel printers. The program does this line by line, and the havoc it wreaks is enough to give a vaguely uneven look to such things as business letters. One solution would be to turn off the microjustification by typing .UJ at the beginning of each and every document. But it's simpler to patch WS.COM to turn microjustification off until you explicitly turn it on. Simply changing the byte at &H3D4 to 00 instead of the default FF does the trick.

THE LONG GOODBYE A value known as the long delay controls the length of time the opening copyright message and the words "NEW FILE" appear on your screen. It's at address &H2D2, and it comes from the factory set at &H10. Change it to 00 and you'll wonder how you ever managed to live with the original delaying tactics.

ONE LAST LINE In our book we explain how to change the colors of the bottom-line function key display to just about anything. But many users would like to get rid of it entirely. To do that, simply change the byte at &H248 from &H18 to &H19. Then change the byte

at &H5041 from &H8D to &HC3. An extra line of your text will replace the

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—Ward Starr and Mel Murch

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CIRCLE 121 ON READER SERVICE CARD

■ WORDSTAR

(continued from page 260)

it difficult to construct a coherent page, it's suddenly critical for a document to look as if it came from a typesetter instead of a typewriter.

Meanwhile, we keep getting letters from gnatbrains who know how to get their printers to do proportional boldfaced italics in three different sizes but can't construct a coherent paragraph and don't understand the homonymic howlers that slip past their spelling checkers. Maybe it's time for a word processor that can tell the user the output is garbage.

Certainly there are plenty of things we wish *WordStar* did differently, and that's one reason we often recommend other programs to novices and those with special requirements. If we did a lot of footnoting, repeatedly needed multiline headers and footers, wanted to draw organizational charts and boxes with the PC's extended

ASCII characters, or insisted on true proportional spacing, we'd undoubtedly switch to another product ourselves.

And lord knows there are lots of other features on our *WordStar* wish list. Automatic paragraph reformatting might be nice, but the on-screen hurly-burly of colliding words in insert mode can often be a distracting nuisance. Windowing would be nifty, but *SideKick's* NotePad offers just about every window feature anyone could want, including a full cut-and-paste facility. *WordStar's* complete insensitivity to DOS subdirectories is a definite irritation to hard disk users, but a RAMdisk, *SideKick*, and file path programs ease most of the pain.

On-screen underlining and boldfacing, an "undo" facility, accurate display of page breaks in complex documents, better internal formatting, and dozens of other improvements are also devoutly to be

wished for. But not at the expense of the strong points we've enumerated. MicroPro keeps claiming *WordStar 2000* is not a *WordStar* update, so some sort of major reworking of "classic" *WordStar* may well be in the offing one of these days. On the other hand, that statement could have been made for the last 2 years.

Many word processors will convert *WordStar* files to their particular formats with one sort of utility or another. But that's a chore, and so is learning a whole new set of commands and unlearning the old ones. Considering that not one competitor on the market lacks some sort of failing we consider major, we'll accept *WordStar's* limitations, rejoice in its advantages, hope for an update, and stick with the partner what bring us. As someone once said, spring chickens are nice, but old coyotes have been known to eat them alive.

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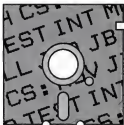


Illustration: Elise Bergman

Roll up your shirt-sleeves and let Peter Norton show you how to get through boot camp in assembly language by making your own boot error messages.

I bumped into a problem that many software vendors have, and I came up with a nifty little solution that I want to share with the readers of *PC Magazine*.

The problem arises when you send out nonsystem disks to people who may not be experienced enough with their PCs to know the difference between ordinary disks and the boot disks you use to start your computer. If someone starts up his computer with an ordinary disk—one that doesn't contain the DOS system files—he gets a message such as: "Non-system disk or disk error. Replace and strike any key when ready." While that's certainly not the most technical and confusing message you've ever seen, it's also not very helpful to PC beginners who may not know what system disks and disk errors are.

For the disks I send out to my customers, I decided it would be nice to display a less intimidating message that would provide at least a little more helpful information. So I created my own boot record program to display something more reassuring. I'll show you how to do this yourself, so you can make up your own custom boot error messages.

The program can be useful not only to program vendors like me, but also to user groups, who distribute thousands of public-domain diskettes. Lots of these disks go to those who are just learning how to use their computers. For such folk it's a great kindness to have a user-friendly message that identifies what disk they have and tells them what went wrong.

The boot program you create will display a series of messages, giving the user

whatever information you want. In my case, I tell users the name of my product, so they know what they've got, and then I tell them what they need to do. The program then waits for a keystroke and reboots the computer.

To create this boot record, all you'll need is an assembler, such as the IBM Macro Assembler. You *don't* need to know much—anything really—about assembly language to perform this little bit of magic. Even if you've never assembled a program before, just a little common sense will be all you need. You'll prepare three files, which are listed in Figures 1, 2, and 3, and I'll explain how each of them works. [If you wish, you can download the three **BOOTMAKE** listings by modem from *PC Magazine's Interactive Reader Service* at (212) 696-0360—Ed.]

The first file, **BOOTMAKE.BAT**, shown in Figure 1, is a regular DOS batch

file that automates the process. It assembles the boot program and converts it into the proper format, first by linking it and then (with **EXE2BIN**) by converting it from an **.EXE** to a **.COM** format. Next comes the key step, which uses **DEBUG** to transfer this program onto a diskette's boot record. The batch file finishes up by deleting the extraneous files that were created along the way.

To automate the command sequence that tells **DEBUG** to transfer the boot program onto a prospective user's diskette, you use **BOOT.DBG**, the second of the three files you create. Its brief, two-line listing is shown in Figure 2. **BOOT.DBG** provides **DEBUG** with the commands that write the boot record onto a diskette. The batch file in Figure 1 uses DOS's redirection facility to pass these commands to **DEBUG**; in order for this to work, of course, you'll have to have these com-

```
rem      This batch file will
rem      1) assemble boot.asm
rem      2) link it into boot.exe
rem      3) convert it into boot.com
rem      4) copy it to the boot record
rem         in a diskette in drive A
rem         (be prepared for that)
rem      5) delete extraneous files
pause Ready?
masm boot,boot.obj,nul,nul
link boot,boot.com
exe2bin boot.exe boot.com
debug boot.com <boot.dbg
del boot.obj
del boot.exe
del boot.com
```

Figure 1: The DOS batch file that automates the process of adding your own boot record to distribution disks.

■ PROGRAMMING/UTILITIES

```
W 100 0 0 1
Q
```

Figure 2: DEBUG uses these commands to write your custom boot record to disk.

mands stored in the right filename. There are only two commands, short and simple, and the first one does all the work; it writes (W) from memory location hex 100 (where the boot program has been loaded) to the A: drive's (0) first or boot sector (0) for a length of one sector (1).

Those two files are worker bees that take the labor out of creating your custom boot record. But the part that's really of interest is the assembler program that creates the boot record itself. You'll see it in Figure 3. For the rest of this column, I'll be taking you through this listing to show you what's going on. Assembler experts won't

■ You don't really need to know much about assembly language to perform this bit of magic.

need any guidance in this simple program; what I'll explain are the things that novices will need to know, and I'll point out some interesting highlights along the way.

The boot program begins with a jump past some data that describes the disk's format. All the disk formats introduced since DOS 2.0 have this descriptive information in them. Since my boot record is set up for the PC's lowest common denominator, the single-sided, eight-sector diskette (a DOS 1.0 format), this information isn't needed. I included it partly out of compulsive tidiness and partly to show you what is needed for other disk formats. If you set up a custom boot record for another format, substitute the appropriate information in these fields. The best way to find out what belongs here is simply to inspect the standard boot record on the disk format you're interested in; you can use DEBUG or my Norton Utilities' snooping tool to see what the right data is.

```
; Boot record program (C) Copyright Peter Norton 1986

boots segment 'code'

    public boot

    assume cs:boots

boot proc far

; 30-byte DOS info -- set up for 1-side, 8-sector
; change as needed for any other format

head:
    jmp     begin          ; EB 2A 90 as per normal
    db     ' Norton '     ; 8-byte system id
    dw     512             ; sector size in bytes
    db     1               ; sectors per cluster
    dw     1               ; reserved clusters
    db     2               ; number of fats
    dw     64              ; root directory entries
    dw     320             ; total sectors
    db     0FEh           ; format id
    dw     1               ; sectors per fat
    dw     8               ; sectors per track
    dw     1               ; sides
    dw     0               ; special hidden sectors

; mysterious but apparently standard 14-byte filler
    db     14 dup (0)

; carry on with the boot work

begin:
    mov     ax,07c0h ; boot record location
    push    ax
    pop     ds
    mov     bx,message_offset ; put offset to message into si
    mov     cx,message_length ; message length into cx

continue:
    mov     ah,14 ; write teletype
    mov     al,[bx]
    push    ds
    push    cx
    push    bx
    int     10h
    pop     bx
    pop     cx
    pop     ds
    inc     bx
    loop    continue

    mov     ah,0 ; read next keyboard character
    int     16h

    mov     ah,15 ; get video mode
    int     10h
    mov     ah,0 ; set video mode (clears screen)
    int     10h

    int     19h ; re-boot

beg_message:
    db     0Dh,0Ah ; return carriage, line-feed
    db     0Dh,0Ah
    db     0Dh,0Ah
    db     0Dh,0Ah
```

(Figure 3 continues)

Figure 3: The BOOT.ASM listing for preparing customized boot records.

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■ PROGRAMMING/UTILITIES

Next comes the program that makes this boot record work. The first three instructions (following the label "begin") give the program addressing access to its own data. The hex value 07C0 is used because that's the memory segment paragraph address where the PC loads the boot program.

Following that is a short program that displays whatever messages you want to show; I've set up the assembler code so that it automatically adjusts to the size of whatever messages you substitute for the ones I use. The program through "loop continue" does the work of displaying the message.

The next two lines of the program simply read a character from the keyboard. This makes the program pause so that the user can read the messages. After a key is pressed, the program proceeds to clear the screen and then reboot the computer. The screen is cleared by using a simple trick: It tells the computer to change the video mode (the format of the display screen), which always causes the screen to clear; to avoid disrupting anything, we first find out what the current mode is and then "change" it to the same mode.

Following that simple bit of programming come the messages to be displayed. You'll see the messages that I use, and you

can substitute your own; my messages will give you all the clues that you need to set yours up. The lines that read "0Dh,0Ah" are the return carriage and line feed characters needed to move from one display line to another. I made all my messages fit within 40 characters in case the computer starts up in 40-column mode (as the PCjr does), but that really isn't necessary. If you want to position your messages further across the screen, you can use the tab character, 09h, to substitute for a bunch of spaces. About the only thing you have to be careful with is not to make your messages too long to fit. Fortunately, you'll have 424 bytes to hold your messages, which is a pretty generous amount.

After the messages that you place in the

■ My own messages will give you all the clues that you need to set yours up.

boot record come a few assembler statements that count how much space is left in the 512-byte boot record; fill it out with padding, and finish the record off with a standard 2-byte signature, hex 55 AA.

With this simple little program, you'll be able to create your own custom boot record messages to help and guide anyone who tries to start his computer with your diskette.

There is one minor flaw in this custom boot record that I haven't been able to figure out. On some PCs—it seems only to be old-model machines with the earliest ROM BIOS and those that use only the color/graphics adapter [*also some Compaqs—Ed.*—only part of my messages get displayed. In such cases the rest of the program—which waits for a keystroke, clears the screen, and reboots—works fine, but only about half of the message lines appear on the screen. If anyone out there knows why this happens, please write me c/o PC Magazine, One Park Ave., New York, N.Y. 10016. I'd love to know the reason.

```

db      '      Start your computer with'
db      0Dh,0Ah
db      '      a DOS system diskette.'
db      0Dh,0Ah
db      0Dh,0Ah
db      0Dh,0Ah
db      '      This is'
db      0Dh,0Ah
db      '      The Norton Utilities'
db      0Dh,0Ah
db      '      Version 3.10'
db      0Dh,0Ah
db      '      from'
db      0Dh,0Ah
db      '      Peter Norton'
db      0Dh,0Ah
db      '      2218 Wilshire Blvd'
db      0Dh,0Ah
db      '      Santa Monica, CA 90403'
db      0Dh,0Ah
db      '      (213) 826-8032'
db      0Dh,0Ah
db      0Dh,0Ah
db      0Dh,0Ah
db      0Dh,0Ah
db      '      Insert a DOS diskette'
db      0Dh,0Ah
db      '      press any key to start DOS...'
end_message:
; I put a copyright notice here; you do if you want to
tail:
message_offset equ beg_message - head
message_length equ end_message - beg_message
filler_amount equ 512 - (tail - head) - 2

db      filler_amount dup (0) ; filler

db      055h,0AAh           ; boot id

boot endp
boots ends

end

```

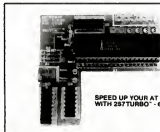
(Figure 3 ends)

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■ EDITED BY JARED TAYLOR

SPREADSHEET CLINIC



Illustration: Lisa Bergman

This forum lets readers exchange the ingenious solutions and timesaving hints that make their spreadsheets and integrated software packages work better.

TRANSPOSING DATA TABLES

Sometimes, you may need to transpose a matrix or a table of numbers in 1-2-3. One reason for doing this is that 1-2-3's database functions don't work both vertically and horizontally. You may, therefore, use these functions, then rearrange it for a more readable printout.

Consider the two tables shown in Figure 1, for example. In the first, the data is in rows next to the years, which are set vertically in column A. If you decide the data will look better with the years in one row and the data in columns below them, you will have to transpose the data as in the second table. It's possible to do this by translating your worksheet into a DIF format using the "rowwise" option and then translating it back "columnwise," but this is tricky and cumbersome.

The easiest way to transpose the data is

to use the @VLOOKUP function. Once you have established cells A3..D7 as the data range, you only have to enter one formula in C12 and then copy it to the rest of the second data table. The formulas at the bottom of Figure 1 are the original in C12 as well as sample results of copying.

It is the mixed addresses in the original formula (C\$10 and \$A12) that allow you to use a single copy operation to fill the entire matrix. The only other trick is to use an index column of ascending numbers in cells A12..A14. This lets you set the offset for the vertical lookup operation with mixed cell references rather than absolute numbers.

Mark Pankin
Arlington, Virginia

This is one of the cleverest uses of the @VLOOKUP function I've seen in a long time. It won't work for anything but num-

bers, though, so for transposing the labels you might have a look at "Rows to Columns" on the next page.

PRINTER RESET

One of 1-2-3's most frustrating features is that it doesn't reset the printer after a print job. If you've ever printed a worksheet in compressed type and then tried to print a letter from a word processor, you've learned that 1-2-3 leaves your printer set for compressed type. An obvious solution is to turn the printer off and then back on, but that's not always convenient.

The macro in Figure 2 prints a worksheet in compressed type and then immediately resets the printer for normal type. The initialization strings are for the C. Itoh Prowriter 8510, so change them for your own printer. The macro uses two defined ranges: SHEET is the range you want to print, and BLANK is a single blank cell anywhere in the worksheet.

The macro first prints SHEET in compressed type. It then prints BLANK in normal type. Since BLANK is a blank cell, nothing will print, but when you give the /Print command, you activate the new setup string, returning your printer to normal.

Kim Heathman
Vancouver, Washington

	A	B	C	D	E	F	G
1		X	Y	Z			
2	Year						
3	88	15	17	21			
4	81	18	21	26	TABLE 1		
5	82	21	25	31	-----		
6	83	24	29	36			
7	84	27	33	41			
8							
9							
10		Year	88	81	82	83	84
11							
12	1	X	15	18	21	24	27
13	2	Y	17	21	25	29	33
14	3	Z	21	26	31	36	41

SAMPLE FORMULAS IN TRANSPOSED TABLE:

Range \$TABLE = A3..D7

C12: @VLOOKUP(C\$10,\$TABLE,\$A12)

D12: @VLOOKUP(D\$10,\$TABLE,\$A12)

C13: @VLOOKUP(C\$10,\$TABLE,\$A13)

```
\P      /pprSHEET~
        os\027\081~q
        ag
        rBLANK~
        os{esc}\027\078~q
        gq
```

Figure 1: Formulas for transposing a matrix or data table.

Figure 2: A macro that resets the printer.

■ SPREADSHEET CLINIC

ROWS TO COLUMNS

Often, it's handy to be able to copy the contents of a row into a column. Figure 3 contains three 1-2-3 macros that do this, but in slightly different ways. All require that the first cell in the row to be converted be given the range name CELL and that the last cell contain the value 9. The 9 is nothing more than an arbitrary marker to stop execution of the macro, and can be of any convenient value.

The first macro copies data from a row in which every column contains data. It will produce a column in which every row contains data. Put the cursor at the top of the column you want to copy the data to and hit Alt-A. When the macro is finished, it automatically returns the cursor to the top of the column.

The second macro is really just a variant of the first and will create a vertical column of data that skips every other row. The last

\A	/CCELL"" {DOWN} /RXCCELL""{RIGHT}" /XICELL=9"/UP}{END}{UP}/XQ" /XG\A"	This macro copies a horizontal list to a vertical list. There are no spaces in either list.
\B	/CCELL"" {DOWN} /RXCCELL""{RIGHT}" /XICELL=9"/XQ" /XG\B"	This macro creates a vertical list with one blank row between each item.
\C	/CCELL"" {DOWN} /RXCCELL""{RIGHT}{RIGHT}" /XICELL=9"/XQ" /XG\C"	This macro creates a vertical list without spacing, from a horizontal list with a blank in every other cell.

Figure 3: Three macros that convert rows to columns.

macro will copy data from every other cell in a row to every cell in the newly created column. By changing the second and third lines in the macro, you can make it copy

according to whatever spacing you wish to specify.

Mark Danahy
Washington, D.C.

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■ SPREADSHEET CLINIC

This is a good, tightly written set of macros. They use so little code because they name and rename ranges without changing the cursor's current position. This is a widely applicable technique. The macros can also be modified to copy the contents of a column to a row.

DELETING RANGE NAMES

I find that the /Range Name Labels Right command in 1-2-3 is a very handy way to create many macro range names all at once. However, when I erase a macro, I often wish that I could get rid of a column of range names just as easily. Obviously, it's easy to erase the labels, but it's a chore to /Range Name Delete the actual range names one by one.

The macro shown in Figure 4 will delete both the labels and the range names. Move the cursor to the top of the column of labels corresponding to the range names

```

\d      /RNC\labels"{"?"
\loop  (goto)\labels"
        (up)\end\down)
        /C"name"
        /RND

\name   -
        /RE"
        /XI@count(\labels)
        >0"/XG\loop"
        /RND\labels"
        /XQ
  
```

Prompt for list of labels.
Go to beginning of range.
Find next label in list.
Copy label to "name" slot.
Delete range name defined by that label.

Erase the label.
If there are labels remaining, loop back and repeat process.
Else, delete range name "labels".
Quit.

Figure 4: A macro that deletes range names.

you want to delete and run the macro. At the pause (the first line of the macro), expand the cursor to indicate the range of labels and hit Return. The macro will then go on to erase every range label and delete every name.

There are several points to remember when using this macro. It will work properly only if the range you indicate at the outset contains only one column and at

least two rows. The column must be made up of range names only; anything else will hang up the routine. Also, the macro will not necessarily delete the names in top-down order, but it will get them all. Finally, you can adapt the macro to process a horizontal range by replacing (up) (end) (down) with (left) (end) (right).

David Herst
New York, New York ■

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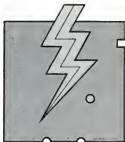


Illustration: David Bergman

Push your hardware and software to the limit with these productivity-enhancing tips from readers. This time: a patch for Turbo Pascal's TextMode.

TURBO PATCH PROBLEMS

The Power User column of *PC Magazine*, Volume 4 Number 16, had a patch for Turbo Pascal to disable the clear-screen procedure at the beginning of program execution. The patch does what it is supposed to do. However, a problem occurs when a program switches to medium-resolution graphics mode. It is almost impossible to return to 80-by-25 text mode without getting out of Turbo altogether.

Even without your patch I have had another problem with Turbo Pascal while using medium-resolution graphics mode. When writing text to the display, Turbo seems to assume that 80 columns are still available and overwrites when text wraps past the edge of the screen.

Hoon Im
Glendale, California

I plead guilty on the patch issue. One reason why we advise that patches be applied only to copies of the program is that it's of-

ten impossible to predict the full ramifications of a modification. Turbo Pascal is so tightly coded that it's not surprising the same code is used for both the initial clear screen and the TextMode procedure. But I know of three ways to solve this problem.

Somewhere near the beginning of your Turbo Pascal programs, you can fix the patch by adding the following two commands:

```
Mem [Cseg:$02FC] := $CD ;
Mem [Cseg:$02FD] := $10 ;
```

Now TextMode will work correctly, but please note that the source program should not be compiled under versions of Turbo other than 2.0.

The second solution is to write your own TextMode procedure. A simplified version is shown in Figure 1. You can return to 80-by-25 text mode with the statement:

```
TextMode (3) ;
```

The third solution is to upgrade to Turbo Pascal Version 3, which doesn't clear the screen at the beginning of program execution.

Your second question concerns the manner in which characters are written to the screen in medium-resolution graphics mode. I assume you're speaking of the phenomenon where characters at the end of a line wrap to the next line but are displayed only two dots lower instead of eight dots lower. Turbo's knowledge of the screen width in characters is based on the last text mode. The solution is simple: before switching to graphics mode, just switch to 40-column character mode by entering these commands:

```
TextMode (1) ;
GraphColorMode ;
```

This solution is not compatible with the approach embodied in Figure 1, however, since that patch replaces the TextMode procedure that Turbo uses for line-length information.

—Charles Petzold

```
PROCEDURE TextMode (mode: Integer);
  TYPE Registers = RECORD
    AX, BX, CX, DX,
    BP, SI, DI, DS,
    ES, Flags: INTEGER;
  END ;
  VAR Reg : Registers ;
  BEGIN
    Reg.AX := Mode ;
    Intr ($10, Reg) ;
  END ;
```

Figure 1: A simple alternative Turbo Pascal TextMode procedure to switch video modes.

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USER-TO-USER



Illustration: Eric Rogerson

PC Magazine's readers share their favorite tricks for getting the most horsepower out of DOS, BASIC, and their systems in general.

```

100 ' Program to Create KEYLOCK.COM -- By Ken Gibbs
110 DEFINT A-Z:CHECKSUM=0:DATABOOD=-1
120 CLS:PRINT "Checking Data Statements ...":PRINT
130 FOR I=1 TO 26:CHECKROW=0:FOR J=1 TO 8:READ BYTE
140 CHECKSUM=CHECKSUM+BYTE:CHECKROW=CHECKROW+BYTE
150 NEXT:READ LINECHECK:IF LINECHECK=CHECKROW THEN 170
160 PRINT "Data Error In Line"1250+10*I:DATABOOD=0
170 NEXT:READ TOTAL
180 IF TOTAL () CHECKSUM THEN 200
190 IF DATABOOD THEN 220
200 BEEP:PRINT
210 PRINT "DATA Error -- File Not Created ...":END
220 RESTORE 280:OPEN "KEYLOCK.COM" AS #1 LEN=1
230 FIELD #1,1 AS Z$
240 FOR I=1 TO 26:FOR J=1 TO 8
250 READ BYTE:LSET Z$=CHR$(BYTE):PUT #1:NEXT
260 READ CHECK:NEXT:CLOSE #1
270 PRINT "KEYLOCK.COM Created ...":END
280 DATA 144, 235, 76, 144, 251, 251, 144, 251, 1496
290 DATA 30, 6, 80, 83, 81, 82, 87, 86, 535
300 DATA 85, 140, 206, 142, 222, 142, 198, 228, 1363
310 DATA 96, 168, 128, 117, 12, 60, 58, 116, 755
320 DATA 22, 60, 69, 116, 18, 60, 70, 116, 531
330 DATA 14, 93, 94, 95, 90, 89, 91, 88, 654
340 DATA 7, 31, 234, 0, 0, 0, 228, 500
350 DATA 97, 12, 128, 230, 97, 36, 127, 230, 957
360 DATA 97, 176, 32, 230, 32, 93, 94, 95, 849
370 DATA 90, 89, 91, 88, 7, 31, 207, 14, 617
380 DATA 31, 176, 9, 180, 53, 205, 33, 137, 824
390 DATA 217, 75, 75, 38, 139, 7, 61, 251, 863
400 DATA 251, 117, 9, 186, 169, 1, 180, 9, 922
410 DATA 205, 33, 205, 32, 190, 51, 1, 46, 763
420 DATA 137, 12, 46, 140, 68, 2, 186, 6, 597
430 DATA 1, 176, 9, 180, 37, 205, 33, 186, 827
440 DATA 142, 1, 180, 9, 205, 33, 186, 79, 835
450 DATA 1, 131, 194, 15, 205, 39, 13, 10, 608
460 DATA 75, 69, 89, 76, 79, 67, 75, 46, 576
470 DATA 67, 79, 77, 32, 97, 99, 116, 105, 672
480 DATA 118, 101, 32, 46, 46, 46, 13, 10, 412
490 DATA 36, 7, 13, 10, 75, 69, 89, 76, 375
500 DATA 79, 67, 75, 46, 67, 79, 77, 32, 522
510 DATA 97, 108, 114, 101, 97, 100, 121, 32, 770
520 DATA 97, 99, 116, 105, 118, 101, 32, 46, 714
530 DATA 46, 46, 13, 10, 36, 144, 144, 144, 583
540 DATA 19120
  
```

Figure 1: Program creating KEYLOCK.COM to disable NumLock, CapsLock, and ScrollLock.

KEYBOARD KILLER

Since I run several applications programs on my PC AT, each requiring a different combination of settings for CapsLock, NumLock, and ScrollLock keys, I found Dan Briley's CAPSON.COM and CAPSOFF.COM programs in User-to-User, Volume 4 Number 18, very useful.

To prevent the state of these keys from being changed unintentionally, I came up with the KEYLOCK.COM program in Figure 1, which disables all three keys. After running KEYLOCK, to set any of these keys on I run the programs described by Mr. Briley. This technique is especially useful on the PC and PC-XT keyboards, which lack status indicator lights.

When KEYLOCK is activated, it attaches itself to DOS and can't be removed without resetting the computer.

Kenneth C. Gibbs, Jr.
Marion, Connecticut

KEYLOCK.COM does indeed render the NumLock, CapsLock, and ScrollLock keys inoperative. For users who lean on the Ctrl-Break keys, this can be a real nuisance, although Ctrl-C will still work. Note that you'll have to reboot to disable the disabler.

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Illustration: Dave Bergman

INFORMATION HUNGRY

IBM's *Technical Reference* manual isn't very helpful—at least in the area I'm interested in. I have found that, for example, while my Version 2.02 manual lists the I/O ports and their addresses, that's about all it does. It doesn't tell you what's on each line in the port and no information is provided on how to program the port. Moreover, the "hidden" programmable timer at ports 42h and 43h isn't even mentioned.

Can you recommend any books or other sources that can supply the missing information?

Bill Kraengel, Jr.
Valley Stream, New York

The IBM Technical Reference manuals for the various members of the PC family are the primary sources of technical information on the workings of the PC. These manuals are indispensable for anyone who wishes to delve into the inner workings of the machine for direct hardware control or even just to use the BIOS services in programs.

However, I agree that information in these manuals can be hard to find and is not spelled out in a user-friendly way. Nor are the manuals complete when it comes to discussing programming of the ports, since this information is available elsewhere.

Many of the controller chips used in the IBM PC, including the 8253 Timer, 8255 PPI (Programmable Peripheral Interface), 8259 Interrupt Controller, and 8237 DMA (Direct Memory Access) Controller, as well as the 8088 and 80286 micro-

processors, are from Intel. More detailed documentation on programming these chips can be found in a series of manuals published by Intel. Its two-volume *Microsystem Components Handbook* (over 2,500 pages, and a real bargain at \$25) covers all the chips mentioned above and many more. You can call Intel at (800) 538-1876 or (800) 672-1833 in California for information on ordering or to obtain the free Intel Literature Guide.

The video controller chip (the 6845) is a Motorola product and the floppy disk controller is from NEC, but these are documented fairly well in the *Technical Reference manual* itself.

You can determine how the controller chips are connected to the microprocessor by checking the schematic logic diagrams in the *Technical Reference manual*. You'll find that they are generally connected in a normal manner, so you need to know only the starting address of the ports; the lower bits will function as documented in the Intel manuals.

The IBM PC *Technical Reference manuals* also do provide illustrative real-life examples of how to program and use the chips—it's right in the ROM BIOS listing. (You can't get any more real-life than that.) Many of us who cannot learn too much about the PC have spent countless hours with the assembly language listing of the ROM BIOS extracting invaluable information on controlling the PC at a hardware level.

For instance, in the IBM PC-XT *Technical Reference manual*, Version 2.02, the BEEP subroutine on page A-76 in the ap-

pendix shows how the BIOS controls the 8253 Timer (ports 42h and 43h) and the PPI (port 61h) to make a beep. Pages A-10 and A-11 show how the BIOS sets up the timer for the internal clock. These are only a few of many examples.

For a virtually complete understanding of the PC hardware ports, I recommend you use the Intel (and other chip manufacturer's) literature for information on programming the chips, check the logic diagrams for how the chip is connected up, and search the ROM BIOS listing for examples of how the chip is used. (Nobody ever said that becoming an expert in PC hardware is easy, and this kind of regimen falls into the category of "paying your dues.")

There are some other books that may be helpful if you're not an engineer and don't ever wish to become one. One recent book that has lots of information (along with a healthy share of errors) on the hardware workings of the IBM PC is Peter Norton's *Programmer's Guide to the IBM PC* (Microsoft Press, 1985). Two other books that I've found valuable in sorting out the ports are *Interfacing to the IBM Personal Computer* by Lewis C. Eggebrecht and 8088 *Assembler Language Programming: The IBM PC* by Willen and Krantz. (Both books are published by Howard W. Sams, 1983.)

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Acct'g Modules	319

Prentice Hall	
VGN Execucom	\$259
Executive	
Libraries	55

Rossoft	
Prokey (v.4.0)	\$ 89
SPI Open Access	\$319

Seriatella Software	
Word Perfect w/Sp.	\$239
Personal Word	
Perfect	119
Word Perfect Jr.	49

Sensible Designs	
d Programmer	\$199

Softcorp, Inc.	
PROJECT 6	Call

Softwell	
Fancy Fonts (v.2.0)	\$135
Fancy Word	119

Sonitronics - Softarm	
PC	\$169

Software Group	
Enbala	\$419

Software Publishing	
JR: compatible	
PFS: File, Graph,	
Plan, Write,	
Access	\$ 75
PFS: Report	72

Software Research	
Smartkey	\$ 35
w/FREE Smart path	

Star Software	
Accounting Partner	\$219
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Sublogic Jet	\$ 39

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Thoughtware	
Trigger	\$329

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(JR: Compatible)	
Desk Organizer	\$ 63

■ Yardi	
Adv. Property Mgmt.	\$699
Real Estate Tool Kit	199

■ Zylind	
Zylindex	
Professional	\$225
Zylindex Standard	114
Zylindex Plus	549

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Entry level PC (ZF-148),	
2-360K floppy drives,	
128K exp. to 768K,	
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+ composite output,	
with MS DOS and NEW	
Zenith ergonomic	
amber monitor	\$1459

Zenith	
LCD or lightweight	
portable, advanced PC	
(AT compatible)	Call

PRINTERS

Epson	Call
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NEC	Call
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Okidata	Call
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Quadram	
Quadjet	\$395

Toshiba	Call
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Cables	Call
.....and much more.	

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CDC Hall Hi	\$ 89
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IBM PC	
256K, 2-360K floppy drive	
& keyboard	\$1599

IBM PC XT, AT	Call
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CDC 1800	\$119
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Tandon TM 100-2	
floppy	\$129

Tec Hall Hi	\$109
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COMPUTERS

HARD DISK DRIVES

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10MB Seagate HD w/cntr.	
(1/2 high w/full face plate)	\$499
10MB Shugart HD w/cntr.	
(1/2 high w/full face plate)	399
10MB Tandem HD w/cntr.	
(full height)	499
10MB Tandem HD w/cntr.	
(1/2 high w/full face plate)	579
10MB Maynard HD w/cntr.	
(#2100A 1/2 high w/full or 1/2 hi plate)	699
20MB Seagate HD w/cntr.	
(full height)	589
20MB Miniscrbe HD w/cntr.	
(full height)	759
19.1MB Tandem HD w/cntr.	
(full height)	719
20MB Rodime HD w/cntr.	
(1/2 height)	795
20MB Maynard HD w/cntr.	
(1/2 high w/full or 1/2 hi plate)	999

IBM AT Drives

20MB Seagate HD w/cntr. & rails	
(#4026 full height - 30 millisecond)	\$ 959
20MB Seagate HD w/cntr. & rails	
(#ST22515 high-80 millisecond)	559
20MB Miniscrbe HD w/cntr. & rails	
(1/2 high - 80 millisecond)	669
20MB Rodime HD w/cntr. & rails	
(#2022 full height - 55 millisecond)	699
30MB Rodime HD w/cntr. & rails	
(full height - 55 millisecond)	1089
30MB Seagate HD w/cntr. & rails	
(#4038 full height - 37 millisecond)	1099

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PC Backup	\$1695

I-Omega

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Non bootable HD cntr.	115
Irwin	

Tape Drive #110D	595
Backup tape subsystem	850

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Maynard System 20 w/cntr. card	
#MS1101A	1279
Mountain Computers	
27MB tape only	1799

Tecmar	
QIC-60AT Internal tape drive #811604	1495

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■ indicates new products introduced in this ad.

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Cal, exp. to	
384K	\$229
Everax	
The Edge	\$325
Graphics Edge	355

AST Research

Knight Data Security	
Mgr.	\$230
CC-232	289
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Advantage (AT) 128K	449
DCA	
Ima Board	Call
Hayes	
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Graphics Board	\$295
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Poppo Drive Cntr.	\$119
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Card	285

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S & P)	\$199
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Quadboard Gold	Call
Quadsprint	479
All Other Products	Call
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Tecmar

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Graphics Master	459
Maestro	439

PC Jr.

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SPECIAL

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Keypad	\$ 65

Keytronic	
KB 5151 Jr.	\$169
Quadram	
Quad Jr. Exp.	
Chassis	\$395
Quad Jr. Exp. Mem.	
(for Chassis)	195
Tecmar	
Jr. Caplin	
(128K, C, P)	\$315
Jr. Cadet (64K)	160

MONITORS

SPECIAL

PGS HX 12 RGB	
Color	\$465

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710 Cfr	569

PGS

Max 12E	\$175
Quadram	Call

Sanya

8112 12" HR Green	\$169
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Taxam

Model 420L RGB	\$499
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■ 640

Zenith	
ZVM 136 13"	
RGB/LP	\$599
ZVM 135 13" RGB	459
ZVM1220 12"	
Amber Monochrome	
Monitor	145
ZVM 1223 12"	
Gr. Mono	145
Cables	Call

MODEMS

SPECIAL

U.S. Robotics	
2400 Micro Link	
Modem	\$485

Hayes

Smartmodem 300	\$155
Smartmodem 1200	379
Smartmodem 1200B	389
Smartmodem 2400	Call

Quadram

Quadmodem II	Call
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US Robotics

Password	\$309
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Vental	
Half Card modem	Call
Zenith	
ZA-1704 (for 171)	\$319
Cables	Call

DISKETTES

3M 5 1/4" DS, DD	
(Box/10)	\$ 25

Maxall

MD2-HD (diskettes for	
IBM-PC-AT, Box/10	49

Ultra Magnetics

5 1/4" DS/DD	
(Box of 10)	\$ 18

Verbatim

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MISC.

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Masterpiece	
Plus	\$155

Electronic Protection

Devices	
Limel-EC-II	\$ 55
Rescue-EC-IV	45

Hauppauge

8087 Chip	\$125
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80287 AT Chip

(5 MHz)	219
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Kanalington Microwave

Masterpiece	\$109
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Keytronic KB5151 &

Dorak	\$169
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■ 5153 Keyboard

	309
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Kurta - Kurta Pad

w/Styleus	\$750
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Mouse Systems

PC Mouse	\$159
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■ Torrington

Master Mouse	
1001-C	\$149

Manager Mouse

1001-C AT	165
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Touchstone Technology

Touchstone II	
(add-on keypad	
for IBM)	\$168

Versa Computing

VersaWriter	\$239
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3 256K 2 drive color system	\$2217	
4 256K 2 drives & 10MB system	\$2183	
IBM PC XT		
5 256K 1 drive 10MB system	\$2352	
6 256K 2 drive monochrome system	\$2322	
7 256K 2 drive color system	\$2409	
IBM PC AT		
8 256K 12MB floppy	\$3154	
9 512K 12MB floppy, 360K drive 20MB	\$3600	
COMPAG		
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11 DESKPRO 2 drives	\$1821	
12 286-1 PORTABLE 256K 12MB floppy	\$3277	
13 286-2 PORTABLE 640K 12MB floppy	\$4252	
14 286-2 DESKPRO 640K 12MB 30MB	\$4496	
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17 256K 2 drives, monochrome system	\$1735	
18 256K 2 drives, color system	\$1795	
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3 MITSUBISHI 500 4801	\$95
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6 TANDON 1M 10-32 360K Full Height	\$189
7 TEAC 512 1 2MB AT drive high density floppy	\$178

HARD DISK DRIVES

	Average Access	PC XT COMPAG	PC AT
10MB half height			
1 SHUGART 132	90 ms	\$395	\$300
2 RUDINE 10-732	86 ms	\$395	\$435
20MB half height			
1 SHUGART	90 ms	\$495	\$400
4 SEAGATE ST-325	85 ms	\$590	\$448
5 TANDON 1M-503	85 ms	\$590	\$448
6 MINISCRIPE shock-mounted	68 ms	\$790	\$550
20MB full height			
1 RUDINE 10-702E	55 ms	\$835	\$680
4 SEAGATE ST-425S	36 ms	\$935	\$840
3 CORP. 10MB	29 ms	\$1470	\$1025
30MB half height			
1 SEAGATE ST-433B	36 ms	\$901	\$822
1 CDC 4015 135	29 ms	\$1232	\$995
2 CORP. 30MB	39 ms	\$2235	\$2065
40MB full height			
1 RUDINE 20E	55 ms	\$1050	\$930
4 SEAGATE ST-451	36 ms	\$1100	\$931
1 MINISCRIPE 16053	26 ms	\$1450	\$1200
70MB full height			
1 CDC 4015-546	39 ms	\$1800	\$1590

All drives include mounting hardware, cables, and instructions. PC, XT, COMPAG kits include control card. AT Kits including mounting hardware and cable. Choose from companies: XEROX, WESTERN DIGITAL, GMINI, OTC, ADAPTEC and FALCON

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1 HAYES Smartmodem 1200B internal 300 1200 bps	\$379
2 U.S. Robotics 2400 internal	\$379
3 EVEREX Modem 1200 BPS internal w/ software	\$223

EXPANSION CRASSIS

1 Single drive chassis w/ 30 W power supply for floppy	\$69
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2 10 Pin 15 P.C.C. opt. G	\$133
3 Preview Graphics Card	\$289
4 Advantage (AT) compatible memory w/ opt. up to 2MB	\$380

INTEL	
5 Above Board PC with 64k up to 512K	\$285
6 Above Board PC with 256k up to 2MB	\$495
7 Above Board AT with 128k up to 16MB	\$545
8 Above Board AT with 512k up to 2MB	\$795

QUADRAM	
9 Quadram (AT) memory expansion up to 4MB	\$338
10 Quadram (AT S) opt. 4 more serial ports	\$1119

PENVEY	
11 PC Short Memory (3-384K) 4*5 short card	\$132
12 PC Short Memory 4*5 short card	\$140
13 Mono Combo Card (3-384K) P.S. 5, opt. C.C.	\$247
14 Color Combo Card (3-384K) P.S. 5, opt. C.C.	\$247

TALL TREE SYSTEMS	
15 J-Ram II (5-2MB) opt. P.S. C.C.	\$159
16 J-Ram II (256 - 2MB) opt. P.S. C.C.	\$299
17 J-Ram II (up to 2MB) opt. P.S. C.C.	\$208
18 J-Ram II (Controller card for 12MB drives)	\$208

STB	
19 PRO QUADRAM (128K-1 MB) P.S.	\$358

ONCHO	
20 PCTUNO w/ 256K	\$670
21 CONQUEST (3-2MB)	\$281

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1 IBM PC Monochrome adapter	\$240
2 STB Monochrome w/ parallel	\$189
3 HERCULES Graph. card (E-15ULS comp. rel)	\$247
4 PENVEY Monochrome card w/ parallel	\$175
5 EVEREX EDGE (16 shade high res monochrome)	\$299

COLOR	
6 HERCULES Color card (color comp. w/ P)	\$199
7 PENVEY Color card (16 shades color, super high res)	\$374
8 SHIMA DESIGNS 400 16 shades, super high res	\$828
9 IBM Enhanced Graphic Adapter	\$495

COLOR MONOCHROME	
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MONITORS	
MONOCHROME	
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2 AMOL 313A Amber TTL, input, non-glare tube	\$150
3 IBM Monochrome green TTL, input, non-glare tube	\$255
4 TAKAN 121 121 amber or green TTL, non-glare tube	\$138
5 PRINCETON GRAPHICS Mon-121 amber TTL, 600 pphs	\$199

HIRES COLOR	
6 AMOL 120 (640x480 RGB w/ water buffer auto)	\$499
7 PRINCETON GRAPHICS Hix-12 (640x240 RGB)	\$448
8 TAKAN 120 (640x480 RGB, 8 color true)	\$448
9 BOWY Super fine pitch monitor (800x240 pixels with cable)	\$695

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10 PRINCETON GRAPHICS Hix-12E (640x250)	\$550
11 AMOL 710 1200x480 RGB, non-glare (non-flicker)	\$975
12 AMOL 722 1200x240 25mhz	\$800
13 TAKAN 440 640 1700x480 RGB, non-glare (non-flicker)	\$975
14 PRINCETON GRAPHICS Sx-12 (695x480 non-interlaced)	\$995
15 IBM Color monitor	\$812

TAPE BACKUP SYSTEMS

1 EVEREX 20MB "A" Tape backup system	\$644
2 INWIN 45 60MB "A" Tape backup system internal	\$640
3 INWIN MAGNETICS 12MB Tape internal	\$590
4 INWIN MAGNETICS 20MB Tape internal	\$590
5 INWIN 45 60MB "A" Tape backup system external	\$640

CHIPS

1 64k set of line	\$19
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3 128K set of line (AT Ram)	\$40
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5 8087-3 Main coprocessor IBM PC	\$195
6 8087-4 AT coprocessor	\$198

SYSTEM ACCESSORIES

1 135 Watt Power Supply	\$89
2 150 Watt Power Supply	\$119
3 IBM PC compatible power cable	\$70
4 5151 KEYTRONICS keyboard	\$189
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7 Pci video Buffer	\$200
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DISKETTES / CARTRIDGES

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2 MAXELL high density AT 286 densities	10-545
3 3M "X" 5 1/4 inch 450	\$35
4 3M "X" cartridge 800	\$30

PRINTERS

CANON	
1 PW-100A 1100 CPS narrow (carriage dot matrix)	\$339
2 PW-116A 1160 CPS wide (carriage dot matrix)	\$440

EPSON	
3 FX 85 160 CPS narrow (carriage dot matrix)	\$349
4 FX 100 160 CPS wide (carriage dot matrix)	\$499

ORIGAMI	
5 ORIGAMI 20 color (dot-matrix, 8 pin) (print)	\$220
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7 MI 1100 160 CPS wide (carriage dot matrix)	\$245

IBM	
8 IBM 800 PRINTER	\$450
TOSHIBA	
9 P3340 1100 CPS narrow (carriage LQ dot matrix)	\$1095
10 P331 250 CPS LQ dot matrix	\$345

NEC	
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In fact, we've found that a good diskette manufacturer simply manufactures a good diskette...no matter what they charge for it. (By way of example, consider that none of the brands that we carry has a return rate of greater than 1/1,000th of 1 percent!)

In other words, when people buy a more expensive diskette, they aren't necessarily buying higher quality. The extra money might be going toward flashier advertising, snazzier packaging or simply higher profits.

But the extra money in a higher price isn't buying better quality. All of the good manufacturers put out a good diskette. Period.

How to cut diskette prices ...without cutting quality.

Now this discovery posed a dilemma. How to cut the price of diskettes without lowering the quality.

There are about 85 companies claiming to be "diskette" manufacturers.

Trouble is, most of them aren't manufacturers. Rather, they are fabricators or marketers, taking other company's components, possibly doing one or more steps of the processing themselves and pasting their labels on the finished product.

The new IBM diskettes, for example, are one of these. So are IBM 5 1/4" diskettes. Same for DYSAK, Polaroid and many, many other familiar diskette brand names. Each of these diskettes is manufactured in whole or in part by another company.

So, we decided to act just like the big guys. That's how we would cut diskette prices...without lowering the quality.

We would go out and find smaller companies to manufacture a diskette to our specifications...specifications which are higher than most...and simply create our own "name brand" diskette.

Name brand diskettes that offered high quality at low prices.



Super Star diskettes are sold in multiples of 50 only. Diskettes are shipped with white Polymer-imregnated cardboard sleeves, reinforced hubs, user ID labels and write-protect tabs.

Boy, did we get lucky. Our Super Star Diskettes are the same ones you've been using for years...without knowing it.

In our search for the low priced, high quality diskette of our dreams, we found something even more interesting.

We found that there are several manufacturers who don't give a hoot about the consumer market for their diskettes. They don't spend millions of dollars in advertising trying to get you, the computer user, to use their diskettes.

Instead, they concentrate their efforts on turning out the highest quality diskettes they can...because they sell them to the software publishers, computer manufacturers and other folks who (in turn) put their name on them...and sell them for much higher prices to you!

After all, when a software publisher or computer manufacturer or diskette marketer puts their name on a diskette, they want it to work time after time, everytime (especially software publishers who have the nasty habit of copy-protecting their originals).

Super Star Diskettes. You already know how good they are. Now you can buy them...cheep.

Well, that's the story.

Super Star diskettes don't roll off the boat from Page-Paper or emerge from a basement plant just east of Nowhere.

Super Star diskettes have been around for years...and you've used them for years as copy-protected software originals, unprotected originals. Sometimes, depending on which computer you own, the system master may have been on a Super Star diskette. And maybe more than once, you've bought a box or two of more of Super Star diskettes without knowing it. They just had some "big" company's name on them.

Super Star Diskettes are good. So good that a lot of major software publishers, computer manufacturers and other diskette marketers buy them in the tens or hundreds of thousands.

We buy them in the millions.

And then we sell them to you.

Cheap.

When every little bit counts, it's Super Star Diskettes.

You've used them a hundred times...under different names.

Now, you can buy the real McCoy, the same diskette that major software publishers, computer manufacturers and diskette marketers buy...and call them ours.

We simply charge less.

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FRAUD ALERT!

Please be careful!

A lot of the "no-name" diskettes flooding the market at prices of less than \$1.00 are what we in the industry call "floor sweepings."

In other words, they're garbage...stuff that six months ago, no self-respecting manufacturer would have sold.

But times got tough and some people's scruples got a little lost in desperation...and so a lot of computer users are getting some really bad disks...and that isn't bargain at all.

So, when the price seems too good to be true...like 39 cents, be careful...very careful!

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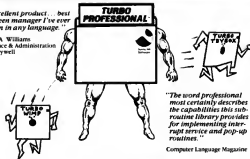
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PC
MAGAZINE

REVIEWS IN BRIEF

TSD: Rallying Without Dust or Burned Rubber

BY PAUL STAFFORD

Road rallying is one of those sports whose aficionados, though fewer in number than, say, bowlers, are at least as loyal. Two such enthusiasts, John and Janice Sternmark, loved their favorite pastime so much they wrote a computer game based on it. *TSD*, which stands for Time, Speed, and Distance, involves you in just what the

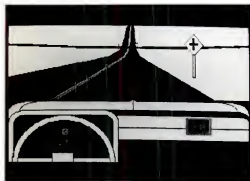
TSD consists of ten simulated rallies, plus a sample leg and easy rally that serve as basic tutorials. There is no manual per se; the elegantly designed binder that contains the program disk also contains instructions for copying and configuring the disk, brief explanations of the sample leg, more elaborate explanations of the ten rallies, and that's it. While you should have the mnemonic keyboard com-

averaging a half-minute pause into your speed while keeping your eyes on the road (not actually necessary in *TSD*, since your car steers itself around bends in the road). Do you brake down to 15 mph for a couple of nanoseconds? Do you wait for another half-minute-pause instruction and just stop for a full minute? The last few rallies are as confusing as trying to figure out which head belongs to which snake in the boa constrictor exhibit at the zoo. The instructions become more and more vague, and you must depend on your logic and problem-solving skills to navigate them. 'Tis the stuff ulcers are made of.

In road rallying, points are assessed on the basis of errors, so low scores are desirable. An experienced driver might average 10 or 15 points per rally. I tried Rally 10, "The Sorry Safari." By the time I reached the first "control," or about one quarter of the way through the course, my score had already approached the total score of a professional basketball game.

The manual recommends that you master Rallies 1 through 3 before attempting the more difficult ones. I couldn't agree more.

TSD is not for the Sunday driver. Real commitment is required to enjoy this game. Since the graphics are not very exciting, you wouldn't plunk down \$49.95 for *TSD*'s visual effects. Still, there's a following for this game out there. True believers in the sport of road rallying may find *TSD* challenging enough to keep them busy when they're not out raising dust and tearing down the road.



Approaching an intersection while driving your car in *TSD*.

name implies: an exercise in precision driving that tests the player's ability to adhere to very specific time, speed, and distance rules. You must also avoid being confused by the ambiguous instructions known to fans as "traps."

Lest you think otherwise, this game is not for the casual arcade or adventure gamer. It is a serious simulation of a sport that demands maddening concentration and nit-picking attention to detail. If you are not already a rallyer or a potential rallyer, you will probably not enjoy playing *TSD*. If you do rally, however, there is much to like in this game.

mands memorized after the first rally, a reference list of the commands might ease the learning process somewhat.

For a rallying novice like myself, the rallies begin hard and get harder. The instructions consist of long, numbered lists of terse, "rallyese" commands like LEFT AT T, or RIGHT AT SIDEROAD AT UNPAVED: CAST 30. CAST stands for "Change Average Speed To," which seems easy enough given the digital, steering-wheel-mounted speedometer whose numbers rise as you press Accelerate and fall as you hit Brake. But what's this: PAUSE 0.50 MINUTE? Try

TSD

RallyMasters Inc.

P.O. Box 1098

Brandon, MI 39042

(800) 835-2246

(800) 362-2421 (in Kans.)

(601) 982-7777

List Price: \$49.95

Requires: 64K RAM, one disk drive, color/graphics adapter, color monitor.

CIRCLE 700 ON READER SERVICE CARD

SureStroke/Dvorak: New Tricks for Old Dogs

BY JIM FORNEY

I pounced on the *SureStroke/Dvorak* software package from Seasoned Systems rather eagerly when I first saw it, as I'd been wanting to experiment with this controversial keyboard layout for a long time. Fans of the Dvorak keyboard layout have long claimed it to be more efficient and more productive than the familiar QWERTY arrangement I've always used. Being basically a lazy typist, I wanted to find out for myself if it was true.

Aside from the program itself, the distribution disk con-

tains an installation utility and a tutorial called *Coach* to help you learn where to put all those thumbs you never knew you had before. The installation utility allows you to change back and forth between QWERTY and Dvorak keyboard layouts quite painlessly. If, like me, you've grown up with the QWERTY layout, learning a new keyboard becomes an endless series of statements like "now, where the heck is the e" until you get up and running with it. Fortunately, there's a tricky bit of software included that calls up the *Coach* tutorial even if you

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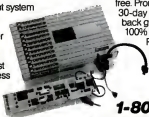
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type J-R-A-J-D (which is what comes up on the screen if you hit the keys that used to spell C-O-A-C-H).

Indeed, *Couch* is a pretty slick bit of software that doesn't fit the usual "tutorial" mold by any means. It gives you a series of carefully designed typing exercises, sometimes stressing accuracy but at other times pressing more for speed, monitoring both factors to determine just what level you've reached. If you really want to learn Dvorak, *Couch* will stick with you until you do.

At some point, however—and preferably early on—you need to see labels on the key caps to let you know what to expect on the screen. If you're using a non-IBM-compatible keyboard, there is some good news. Seasoned Systems can furnish replacement key caps labeled with both the QWERTY and Dvorak functions to replace your original caps. For IBM PC keyboards, however, the best they have come up with so far is transfer letters that stick on your regular keys.

Seasoned Systems sends along three complete sets of these sticky transfer letters; before I finished the transfer, I was well into the third set. My first attempt to transfer the letters to

the tops of my regular keys was a complete disaster. Unless you want to remove your keys and put them back in the Dvorak arrangement (not advisable), or buy a whole new Dvorak keyboard, you're stuck with the transfer letters. Recognizing that they are a less than ideal solution, the company has assured me that its engineers are looking for a better answer. Perhaps they'll discover there are replacement key caps for the IBM PC keyboard, too.

The *SureStroke/Dvorak* system has other problems as well. For one thing, it's not compatible with software packages that take over the keyboard, like *XyWrite II Plus*. That word processor would not load at all in the *SureStroke/Dvorak* environment. *SideKick* and *SuperKey* just said "nuts" to the upstart keyboard layout, putting me right back in QWERTY until I excused them and went back to DOS. Seasoned Systems seems to be pretty much on top of the situation, however; an appendix in the documentation includes a number of fairly simple (often one-byte) DEBUG patches and fixes that can be performed on many packages. And, interestingly enough, *SureStroke/Dvorak* is sold with a rather good money-back guarantee: If

it can't run on your system for whatever reason, the company will refund your money. Indeed, if after 30 days you still just don't like the software, Seasoned Systems will refund your money. I can think of some other software producers whose reputations could benefit from a page out of that book.

As software, the *SureStroke/Dvorak* package is a well-thought-out system overall. When in use, it takes up only about 600 bytes of RAM, hardly enough to be missed even in a 64K-byte RAM system. For individuals just learning to type, this software fits the bill well.

Until I get my thumbs all sorted out, however, I'm going to reserve judgment on the merits of switching over to the Dvorak keyboard from QWERTY. Old habits die hard.

SureStroke/Dvorak
Seasoned Systems Inc.
P.O. Box 3036
Chapel Hill, NC 27514
(800) 334-5531
(919) 732-9391
List Price: \$95
Requires: 600 bytes RAM, one disk drive, DOS 2.0 or later.
CIRCLE 600 ON READER SERVICE CARD

whatever faster clock rate you choose. Installation takes just a few minutes. The only drawback is that a backplane slot is consumed even though no board is involved.

I found 8-MHz operation to be almost flawless, even on my AT with both an internal 20-megabyte hard disk and an external Tallgrass 80-megabyte hard disk. The only major problem I had was attempting to format disks on a 360K-byte floppy drive, which made grinding noises and did not run correctly at 8 MHz. The system also must be powered down to change clock rates; if the switch is made while running, the AT locks up.

I found that operations that depend purely on CPU speed came close to the theoretical 33 percent performance increase. For example, hyphenating a long *Microsoft Word* document took 55 seconds at 6 MHz and only 39 seconds at 8 MHz. Drawing a complex image with *AutoCAD* took 79 seconds at 6 MHz and 62 seconds at the higher clock speed; since *AutoCAD* uses the 80287 in my system, apparently even the math chip operated correctly at the higher speed.

IBM has changed the BIOS included with the newly released 30-megabyte AT to preclude operation at any speed other than 6 MHz. I surmise that this is for marketing rather than technical reasons; IBM wants the AT to stay at its rated speed so a future upgrade can make its clock faster. In any case, potential buyers should make sure that the AT they purchase can run faster than 6 MHz.

At \$99, the Megahertz system is relatively expensive for a couple of crystals. But the ability to return to 6 MHz at will can sometimes be critical, while the significant increase in performance can definitely justify the cost for a power user.

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CIRCLE 600 ON READER SERVICE CARD

The Megahertz High Speed Crystal Set: Revving Up Your AT

BY GLENN HART

The IBM AT has been hailed for its high-speed performance compared with normal, 8088-based PCs. Several factors contribute to the enhanced speed, including the Intel 80286 CPU, improved hard and floppy disk track layouts, and the faster access rates of the drives themselves. These improvements in speed can often make the difference between fine performance from software and merely acceptable behavior; *Microsoft Word*, for example, is sluggish on a PC but lively on an AT.

Even so, IBM's innate conservatism limits the AT's performance. The AT operates at a

clock speed of only 6 MHz, compared with 4.77 MHz for a standard PC. Higher-speed crystals can be plugged into the AT for much faster performance at low cost. However, while the cost of new crystals is low, the upgrade is not without risk.

Suppliers and users of faster crystals have found that 8-MHz operation is almost completely reliable, but operation at 9 or 10 MHz can cause problems with disk drives, memory, and other facets of the system. Intel 80287 math coprocessors, as well as software that uses the system clock rate for timing loops, seem especially prone to troublesome operation at higher clock rates.

Megahertz Corp. of Salt Lake City offers a new solution that has several advantages. Megahertz's crystal system consists of two crystals: a standard 6 MHz, and the user's choice of an 8-, 9-, or even 10-MHz speed demon. The two crystals are sealed in epoxy with a toggle switch mounted on a rear-panel adapter, and a wire runs to the crystal location and plugs in where the system crystal would normally reside.

Just like those compatibles that offer switchable clock rates to maintain compatibility (Compaq DeskPro and the Eagle Turbo come to mind), the Megahertz device allows the AT to run at either 6 MHz or

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Schuchardt Software Systems, *Intecole*,
Intemate, *Intercept*, *Interplan*, *Interword*
Softrend, *Aura*

Software Products Int., *Open Access*
Software Publishing, *PFS:Graph*
Sorcim, *SuperCalc 3*
Summa Software, *Winning On Wall Street*
Trader's Forecast, *Winning On Wall Street*
Trader's Data Manager
Advanced Ideas, *The Game Show*, *Master Match*, *Tic Tac Show*

CBS Software, *Big Bird's Special Delivery*, *Dinosaur Dig*, *Ernie's Magic Shapes*
Davidson & Associates, *Math Blaster!*, *Word Attack!*

Designware, *The Grammar Examiner*, *Math Maze*, *Language Arts*, *Spellscouter*, *States & Traits*, *Trap-a-roid*

Developmental Learning Materials, *Alien Addition*, *Alligator Mix*, *Demolition*, *Division*, *Dragon Mix*, *Meteor Multiplication*, *Minus Mission*
Eduware, *Algebra 1*, *Algebra 2*, *Algebra 3*, *Algebra 4*, *Algebra 5*

Individual Software, *Professor Pixel*, *The Instructor*, *The Typing Instructor*
Knoware, *Knoware*

Scarborough Systems, *Mastertype*, *Songwriter*
Learning Co., *Addition Magician*, *Magic Spells*, *Mopewin Parade*, *Number Stomper*, *Reader Rabbit*

Scholastic, *Turtle Tracks*

Sierra On-Line, *Dragon's Keep*, *Troll's Take*
Simon & Schuster, *Typing Tutor III*

Spinnaker Software, *Alphabet Zoo*, *Delta Drawing*, *Fraction Fever*, *Hey Diddle Diddle*, *Kids on Keys*, *Kindercomp*, *Rhymes & Riddles*, *Story Machine*



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Thoroughbred Software, *Exploring the Amazing Food Factory*, *The Fascinating Story of Cell Growth*, *How Plants Grow*, *Migrating Molecules*, *Mastering Units of Measurement*, *Photosynthesis*

Unicorn Software, *Funbunch*, *Ships Ahoy*, *Ten Little Robots*

Digital Research, *DR Logo*

Energetics, *Energraphics*

Fox & Geller, *dGraph*, *OZ*

Graphic Communication, *Graphwriter BASIC*, *Graphwriter Combination*, *Graphwriter Extension*

Harvard Associates, *P.C. Logo*

Innovative Software, *Fast Graphs*

Mouse Systems, *PC Paint*

PC Software of San Diego, *PC Crayon*

Peachtree Software, *Business Graphics System*

Arkrionics, *Jone*

Eagle Software Publishing, *Personal Financing*

Monogram, *Dollars and Sense*

Penguin Software, *Graphics Magician*

Sierra On-Line, *Homeward*

Adventure Enterprises, *Sea Dragon*

Atarisoft, *Centipede*, *Defender*, *Dig Dug*, *Donkey Kong*, *Poc Man*, *Robotron*, *StarGate*

Avalon Hill Game Company, *Andromeda*

Conquest, *Computer Football Strategy*, *Computer Stocks & Bonds*, *V.C.*, *Voyager*

Broderbund Software, *Serpentine*

CBS Software, *Match-Wits*, *Mystery Master: Murder by the Dozen*

Hayden Software, *Sargon III*

Innovative Design Software, *Pool 1.5*

Intelligent Statements, *Asylum*

MicroLab, *Crisis Mountain*, *Death in the Caribbean*, *Dino Eggs*, *High Rise*, *Minor 2049er*

Muse Software, *Castle Wolfenstein*

Odesta, *Backgammon*, *Checkers*, *Chess*, *Odm*

Origin Systems, *Ultima III*

Orion Software, *J-Bird*

PC Software of San Diego, *Championship Blackjack*

Penguin Software, *The Quest*

Priority Software, *Forbidden Quest*

Scarborough Systems, *Buck Rogers*, *Congo*

Bongo, *Star Trek*

Sentiment Software, *Cyborg*

Sierra On-Line, *BC's Quest of Tires*, *Championship Boxing*, *CrossFire*, *Dark Crystal*, *Frogger*

King's Quest, *Oil Well*, *Ultima II*, *Ulysses and the Golden Fleece*

Sir Tech, *Wizardry*

Sirius Software, *Buzzard*, *Bait*

Spectrum Holobyte, *Gato*

Spinnaker Software, *Snooper Troops #1*, *Snooper #2*

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MANAGING PROJECTS Details, details, details... That's what makes managing complex projects such a chore. And that's what project management software is all about—staying on top of the myriad details that conspire against your turning in that completed project on time and in shape. Alfred Poor and Bruce Brown evaluate six programs that can solve your project problems.

A NEW E-MAIL COMPETITOR: RCA MAIL Popular use of electronic mail may be the single most noticeable effect of the PC revolution on business. In recognition of this popularity, RCA Global Communications has entered the ring with RCA Mail for PCs. The new service encompasses most of the usual electronic mail features and adds a few of its own. How does it stack up against the current e-mail bigwigs? Read Barbara Krasnoff's article to find out.

THE PRICE WATERHOUSE REPORT In this installment of the popular chronicle of what's new and what's good in micro-computer accounting software, the Price Waterhouse professionals dig into Dyna-Micro Software Corp.'s *The Business Library*, a multimodule accounting system you may just want in your library.

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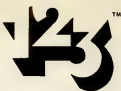
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